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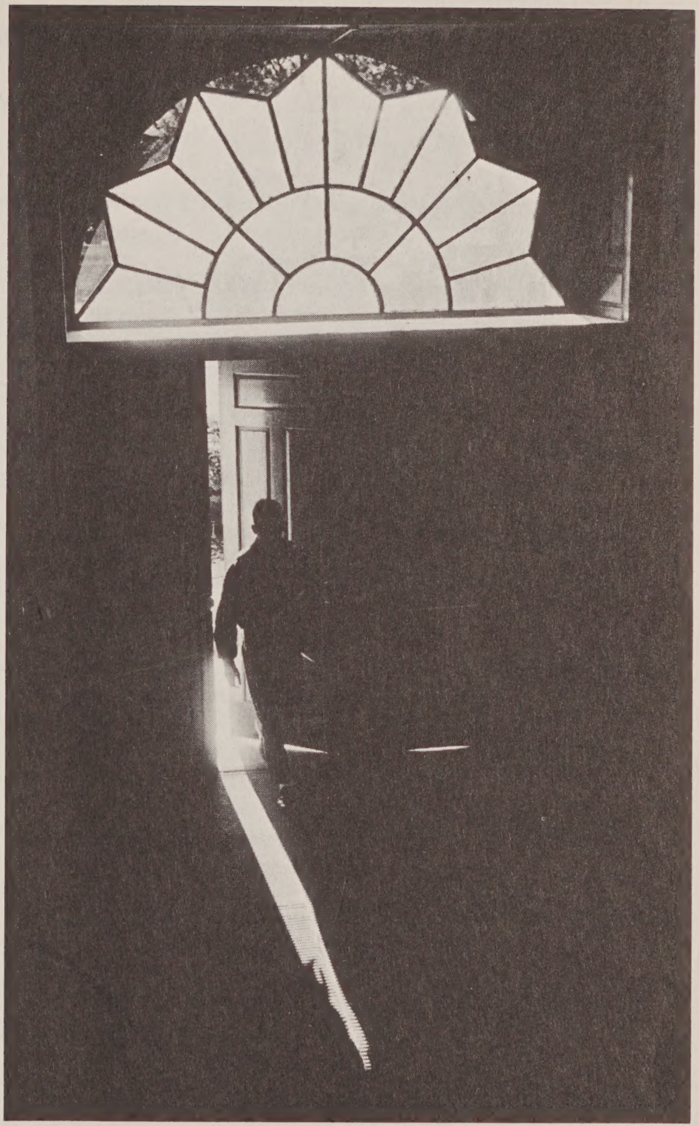

Clark University Bulletin

WORCESTER, MASSACHUSETTS 01610

General Catalog 1969/70

Additional Information

Persons interested in other information about Clark University should address the appropriate officer of administration listed below:

General University Affairs:	Dr. Frederick H. Jackson President
General College Affairs:	Dr. Jefferson A. White Dean of the College
Admission to the College:	Mr. Richard W. Pierson Director of Admissions
Financial Aid:	Mr. Robert M. Kidd Financial Aid Officer
Graduate School Affairs:	Dean of the Graduate School
Evening College Affairs:	Mr. Thomas J. Dolphin Director
Summer School Affairs:	Dr. Charles S. Blinderman Director
Alumni Affairs:	Mr. James D. Van Houten Director of Alumni Affairs
Records and Transcripts:	Mr. Gerard T. Corcoran Registrar
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Clark University reserves the right to amend any administrative policy described in this Catalog without prior notice to persons who might thereby be affected. Information about expenses applies to the academic year, 1969-70.

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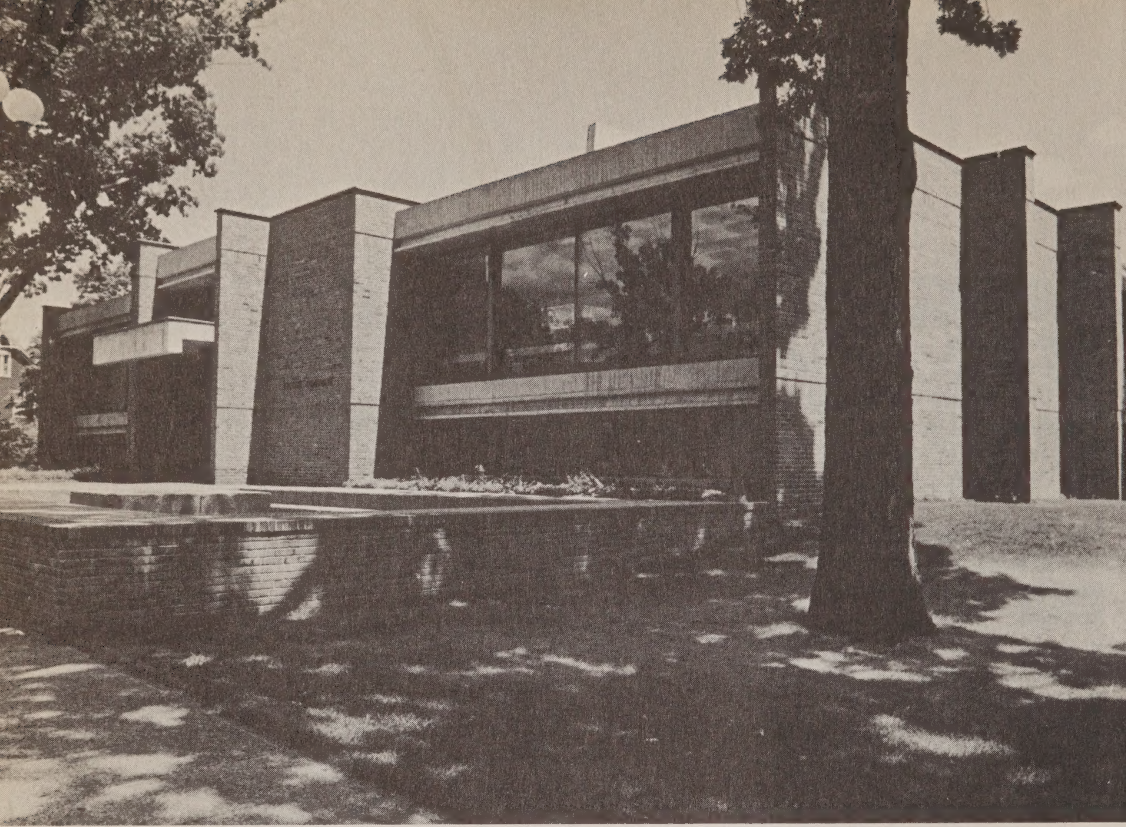


THE UNIVERSITY

General Information

Corporate Name:	Trustees of Clark University
President:	Dr. Frederick H. Jackson
Incorporation:	1887
Function:	Independent university of liberal arts and business administration for men and women
Degrees Conferred:	Bachelor of Arts Bachelor of Fine Arts Bachelor of Science in General Studies Master of Arts Master of Arts in Education Master of Business Administration Doctor of Education Doctor of Philosophy
Day Enrollment:	1863
Faculty:	168
Endowment, December 31, 1967:	Book Value $11,139,200 Market Value: $15,272,500
Library:	270,000 volumes 50,000 maps and charts

The University

Clark University is a small urban, independent, co-educational university of liberal arts and business administration, founded in 1887. With a current enrollment of 1482 undergraduates—839 men and 643 women—and 507 graduate students, the University is situated on a compact 35-acre campus in Worcester, the third largest New England urban center.

The University's activities include undergraduate programs leading to the bachelor's degree in the arts and sciences, graduate study to and beyond the doctorate, and university-level educational programs for area adults. These activities are carried on by four divisions: The College, The Graduate School, The Evening College and The Summer School.

As an institution, Clark is committed to scholarly excellence and intellectual creativity, faith in the ideals of liberal undergraduate education, a concern for graduate education and the values inherent in the small university. These beliefs underlie everything the University is or does, and in combination are the essentials which give Clark a unique position among the more than 2,000 colleges and universities in America.

In practice, the fact that the University has by design remained small in numbers in an age of giant universities has enabled Clark to offer its students a rare educational experience. Through a close association and partnership between the College and the Graduate School, the University effectively combines some of the best features of the small liberal arts college with the scholarly research and advanced programs of the university, to the advantage of both levels.

This exposure is enhanced further by the close personal relationships maintained at Clark between and among faculty, undergraduates and graduate students, made possible by a low faculty-student ratio and by a small enrollment in the Graduate School.

The College seeks to provide its students with essential knowledge and understanding through concentration in one of eighteen fields of study and the selection of a variety of courses in related or other disciplines. In the Graduate School, the Master's degree is offered in fifteen areas, and doctoral programs are available in eleven fields. A student can receive instruction leading to the Doctor of Philosophy degree in biology, chemistry, chemical physics, economics, geography, history, international relations, mathematics, physics, and psychology. A Doctor of Education degree also is offered. Master's degrees can be obtained in these fields and also in business administration, English, government, and sociology. The undergraduate may take courses in these

Dr. Frederick H. Jackson
President of the University

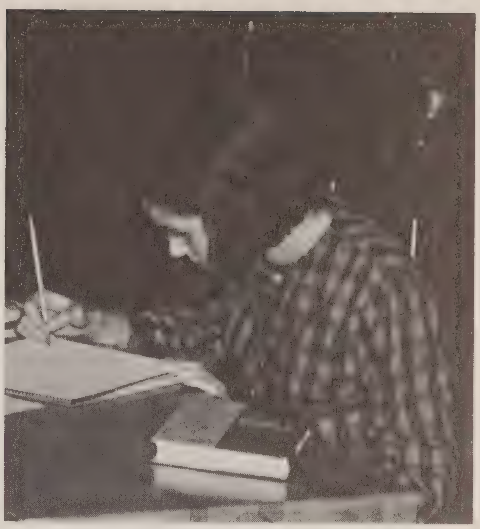
fields, except business administration, and, in addition, in anthropology, classics, comparative literature, computer science, fine arts, German, geology, linguistics, music, philosophy, Romance languages, and Russian.

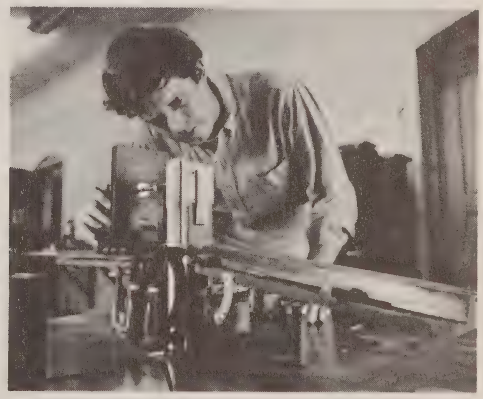
For the superior undergraduate, there are many opportunities to observe and participate in research. Some departments have regular programs through which outstanding undergraduates take advanced courses and participate actively in the research of the department.

For undergraduates, the College offers on an optional basis a three-week January Study Period during which students have an opportunity to enroll in a number of special projects which involve independent work with a minimum of faculty guidance. Several foreign study trips are also available during this period.

The University's insistence on high academic achievement, together with its unique interrelationships between the undergraduate and graduate programs, accounts in large measure for the fact that over fifty percent of the graduates of the College continue their education at graduate or professional schools. It accounts, too, for the fact that a number of Clark's graduates have earned Woodrow Wilson and Danforth Fellowships, Fulbright grants and other national awards for graduate study.

Most important, these accomplishments are significant reflections of the scholarly teaching and productive research of the Clark faculty. Over eighty per cent of its members hold the Ph.D. degree, a ratio which is among the highest in the nation. In the past few years, the faculty has published several hundred scholarly articles and has written a number of books.





In addition to its excellent academic programs, Clark University offers its students many opportunities for rewarding experiences in broad programs of co-curricular and athletic activities—both organized and informal—as well as in cultural activities of high quality both at the campus and within the Worcester community.

Admission to Clark is highly competitive, and is based on non-discriminatory standards. Tuition and other charges for 1969-1970 are approximately $3,300, including $2,200 for tuition and about $1,100 for room and board. Nearly one-half of the students receive financial aid in the form of scholarships, grants, loans or part-time employment.

The University's History

Clark University was founded in 1887 chiefly through the efforts of two men, Jonas Gilman Clark, a sagacious merchant and businessman for whom the University is named, and Dr. Granville Stanley Hall, an educator of breadth and wisdom. Reversing the pattern at most colleges and universities in the United States, Clark was founded as a graduate institution. Undergraduate liberal arts education was established 15 years later in 1902.

Mr. Clark, a native of Worcester environs, amassed wealth during the California Gold Rush by supplying miners and others with manufactured goods. He increased his personal fortune through prudent business transactions initiated after his return to the East at the end of the Civil War. He later settled in Worcester where he became interested in civic affairs. It was during this period of his life that he decided to endow a new institution of higher learning. His last years were largely devoted to this philanthropic endeavor, with the assistance of a group of prominent Worcester citizens.

In 1887, the Trustees of Clark University were incorporated. Dr. Hall was appointed the first president of the University. He had been a professor of philosophy, psychology and education at The Johns Hopkins University, where he had established his reputation as a vigorous and original scholar.

Recognizing the need for graduate institutions in the United States (there was at that time only one titled graduate school in the United States — The Johns Hopkins University), President Hall began the organization of an educational institution which would be solely concerned with graduate study and

research. As a result, Clark University became the second graduate school established in the United States. This unusual educational idea attracted the attention of a number of brilliant and creative scholars, who, upon President Hall's urging, joined the Clark faculty. They constituted one of the most outstanding communities of scholars the country had then known.

The first students entered the University in 1889 and its first two graduates received doctorates in 1891. By 1900, when Clark University became one of the 14 charter members of the Association of American Universities, the brilliance of both teachers and students had established the scholarly reputation of the University.

While Mr. Clark supported President Hall's concept of graduate education, he also was interested in an undergraduate college for men, particularly men who possessed limited financial resources. Accordingly, a codicil to his will, effective upon his death in 1900, provided for the establishment of an undergraduate college. In compliance with the codicil, the Trustees established Clark College in 1902, with an administration and faculty distinct from those of the graduate school. Carroll Davidson Wright, then serving as the first United States Commissioner of Labor, was selected as the first president of the College.

Clark College, from its beginning, had an educational philosophy which was marked by seriousness of purpose and hard work. Inasmuch as the bachelor's degree was granted after three years of study, as opposed to the more common four-year curriculum of the day, the student carried a heavy program of study. There were intramural contests rather than intercollegiate sports; extracurricular activities were at a minimum. Though entrance requirements were informal, a high standard of academic achievement was necessary to remain in College.

President Wright died in 1909. He was succeeded by Edmund Clark Sanford, a professor of psychology in the graduate school. When President Hall resigned in 1920, President Sanford felt the time was advantageous to unite the undergraduate college and graduate school. He resigned from the presidency of the College to return to teaching and scholarship, leaving the possibility open for the reorganization of the two entities under a single president. The Trustees endorsed the reorganizational plan, and began a search for a president to lead the University.

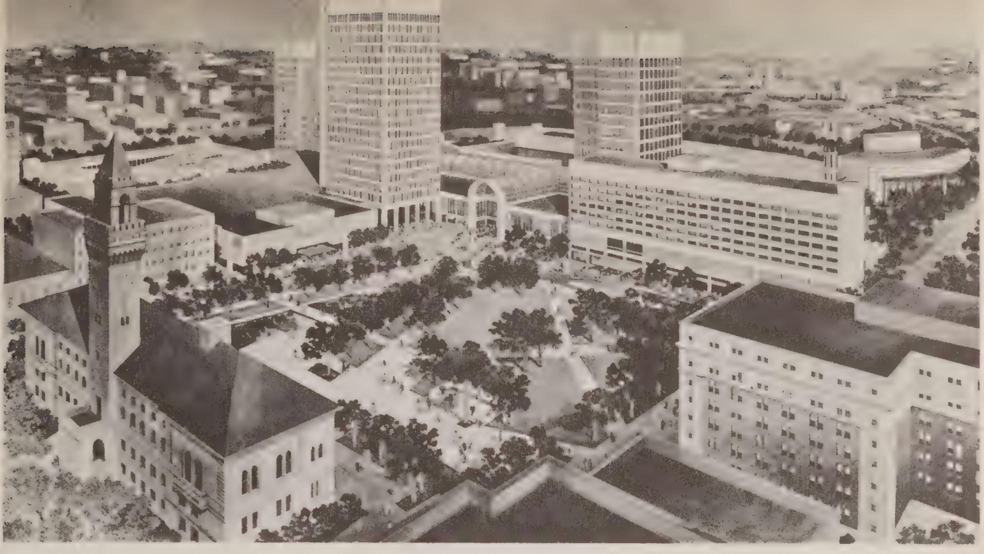
In 1920, Wallace Walter Atwood, a professor of physiography at Harvard University, was appointed by the Trustees as president. During his tenure, there were significant changes in both the educational program and physical plant. The three-year curriculum leading to the bachelor of arts degree was increased to four years. The Graduate School of Geography was founded in 1920. Participation in intercollegiate activities, including athletics, was encouraged. Additions to the physical plant included a men's dormitory, an athletic field, a gymnasium, a library tower and an auditorium. The latter was named Atwood Hall in honor of the president. In 1941, a Division of Business Administration was established, and Clark became a co-educational institution when the Trustees voted to create the Women's College of the University.

President Atwood retired in 1946. He was succeeded by Dr. Howard Bonar Jefferson, professor of philosophy and Director of the School of Philosophy and Religion at Colgate University. Under Dr. Jefferson's leadership, the University continued to develop and be enriched. In 1953, a chapter of Phi Beta Kappa, the national liberal arts honor society, was established, and the Evening College of Clark University was organized as an institution for adult learning. In 1958, the Institute of Human Development was established as an adjunct of the Department of Psychology. In 1964, it was renamed the Heinz Werner Institute of Developmental Psychology in honor of the late Dr. Heinz Werner, G. Stanley Hall Professor of Genetic Psychology, Emeritus, who served as chairman and as a director of the Institute until his death.

The University's physical plant doubled during Dr. Jefferson's tenure. A new chemistry laboratory (Jeppson Laboratory) was opened in 1958. In the following year, two new dormitories (Bullock Hall and Wright Hall) and a student center (Jefferson Hall) were opened. In 1964, a modern residential center (Johnson Hall, Sanford Hall and Little Commons) was completed. A second, three-unit residential center, the Dana Residence Center, opened in September, 1967. A year earlier, work was started on a new University library, named for Robert Hutchings Goddard.

The University's academic programs also were greatly broadened and strengthened during Dr. Jefferson's years as president. Doctoral programs in chemical-physics and education were inaugurated in 1961 and 1962, respectively, and a doctoral program in biology was re-established in 1962. Geology became an undergraduate major in 1963, and music in 1964. In 1965, a doctoral program in mathematics was established, and a three-week January study period for undergraduates was announced. In 1966, a doctoral program in physics was reestablished and a master's program in English was inaugurated. In the same year, the undergraduate major leading to the Bachelor of Science in Business Administration degree was discontinued in favor of the traditional liberal arts major in economics, and the Bachelor of Fine Arts degree was established in the Evening College.

Dr. Jefferson retired in 1967 after 21 years as president. He has been succeeded by Dr. Frederick Herbert Jackson, former Vice President for Humanities and Social Sciences at New York University.



The University's Community

Worcester, the second largest city in Massachusetts and the third largest city in New England with a population of 180,300, is located amid the rolling hills and woodlands in the heart of the Commonwealth. It is within easy driving distance of the region's other major cities and New England's rich resource of recreational, cultural and historical sites.

While internationally recognized as a city of diversified industry, Worcester is equally distinguished as a rapidly emerging educational center and for its wide range of cultural activities. Ten schools of higher learning, with more than 10,000 students enrolled, are located in or near the city, including Clark, Anna Maria College, Assumption College, Becker Junior College, the College of the Holy Cross, Leicester Junior College, Quinsigamond Community College, Worcester Junior College, Worcester Polytechnic Institute and Worcester State College. In addition, nearby are the world-famous Worcester Foundation for Experimental Biology, The American Antiquarian Society and the site for the proposed University of Massachusetts Medical School.

Individually and cooperatively Worcester's colleges annually sponsor broad programs of cultural activities. Among other major cultural attractions in Worcester are the world-renown Worcester Art Museum; the Higgins Armory Museum; Worcester Historical Society and the Worcester Public Library. Also, the Worcester Music Festival presents, as it has for more than a century, an annual series of concerts by the world's great performers. Some of the other outstanding events held throughout the year include theatrical productions, symphonic concerts, light operas, folk festivals and lecture series.

Keenly aware of the challenges of the future, Worcester has launched an extensive redevelopment program to modernize both residential and commercial areas of the Central Business District. Foremost among these projects is a massive $65 million Worcester Center renewal program, started in 1967.

The University Campus

Clark University is an urban institution, located two miles from Worcester's business center. The University's 25 major buildings are situated on a 35-acre campus. Nearby the campus is the University's athletic field and tennis courts and a tract of 20 acres, known as the Hadwen Arboretum.

Clark Hall

The first building erected on the campus was Jonas G. Clark Hall, a four-story granite and brick structure. Built in 1887, it houses the offices of the Evening College, the Summer School, the Placement Office, and many of the offices and classrooms of the departments of instruction.

Science Building

Clark's second oldest building is the Science Building, built also in 1887. It was the site of the experimentation and research by Dr. Robert H. Goddard, "Father of the Space Age," and Dr. Albert A. Michelson, America's first Nobel Prize winner. The building has been remodeled to provide new research and instruction facilities for the Biology and Physics Departments.

Jeppson Laboratory

Jeppson Laboratory, completed in 1958, has modern research and instruction facilities for the Chemistry Department, and houses Johnson Auditorium, a multipurpose lecture hall seating 174 persons, and Kraus Library, a specialized collection of chemical periodicals.

The Goddard Library

The University's new library, named for Dr. Robert H. Goddard, was dedicated on May 19, 1969. It houses the University's collection of more than 270,000 volumes and has about 1,000 individual reading areas.

Atwood Hall

Atwood Hall is an 800-seat auditorium. It also contains the Blue Room for smaller lectures and meetings, and the offices and classrooms of the Fine Arts Department.

Geography Building

Site of America's first Graduate School of Geography, the Geography Building also houses the offices of the President, Executive Vice President and other administrative officers, and the Geology Department. It also quarters the editorial offices of *Economic Geography*, a quarterly publication of Clark University.

Estabrook Hall

The Departments of German, Music, Mathematics and Russian and the University Computer Center, are located in Estabrook Hall.

Alumni Gymnasium

Alumni Gymnasium provides a gymnasium seating 800 persons, shower and locker facilities for intramural and intercollegiate athletics, and the offices of the Department of Physical Education. On the second floor is the Alumni Office and Alumni Lounge, a comfortable meeting room for University organizations.

Wright Hall

Completed in 1959, this dormitory for 200 men has both double and single rooms.

Bullock Hall

Bullock Hall, a women's dormitory, also completed in 1959, houses 137 women students.

Downing Residence Center

The first major addition to the campus under Clark's ten-year development program, this center, opened in 1964, includes Johnson Hall, a dormitory for 150 women, Sanford Hall, which houses 146 men, and the Homer P. Little Student Commons building, which contains dining facilities, lounges, and meeting and recreation rooms.

Dana Residence Center

A second residence complex, named in honor of Mr. Charles A. Dana of Bridgeport, Conn., opened in September, 1967. The center includes Hughes Hall, a dormitory for 150 women, a dormitory for 146 men and Dana Commons, a student center, with dining facilities and offices for student organizations.

Jefferson Hall

Jefferson Hall, opened in 1959, houses one of the University's dining halls, a snack bar, student lounges, a recreation room, and the University Bookstore.

Administrative Building

The Downing Street administrative building houses the offices of Admissions, the Deans, Registrar, Bursar, Treasurer, Business and Public Relations. The Philosophy Department also is located in this building.

Conference Center

Near the main campus is the Conference Center, with comfortable rooms for university meetings and functions.

The Robert Hutchings Goddard Library

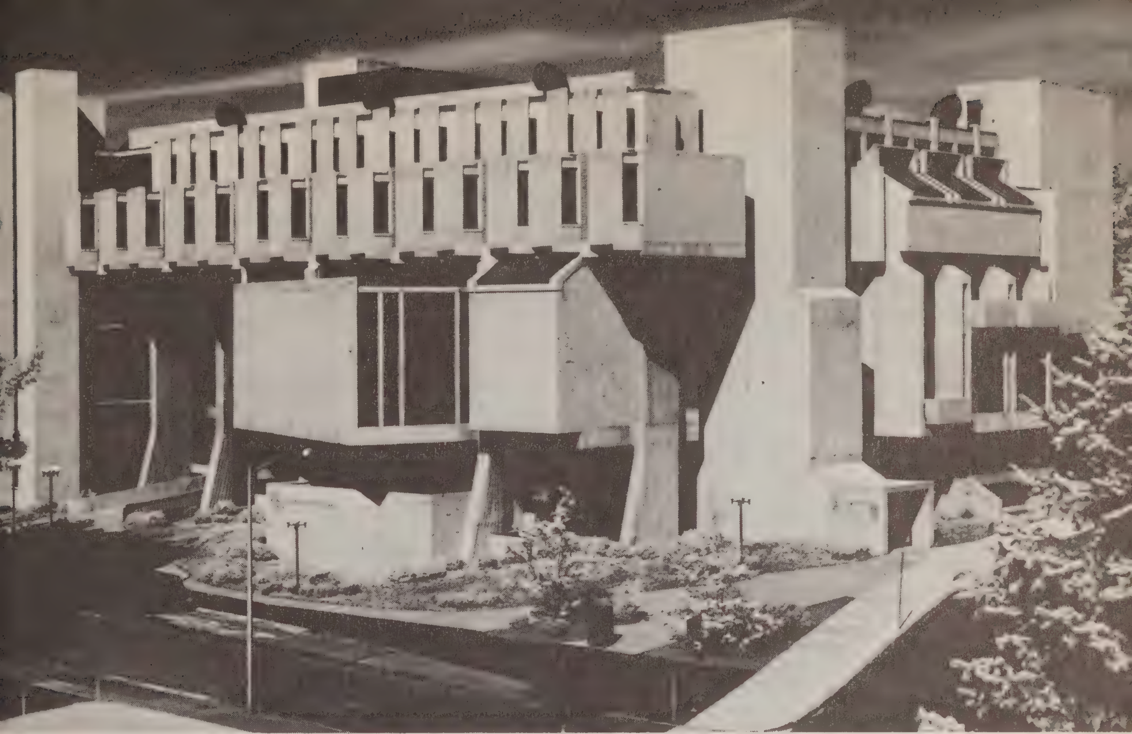
Tilton M. Barron, *Librarian*
Paul S. Clarkson, *Curator of Special Collections*
Marion Henderson, *Reference Librarian*
Elizabeth Hassinger, *Catalog Librarian*
Thomas V. Mongeon, *Circulation Librarian*

The University's new Library contains over 277,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open shelf system fosters free access to books and periodicals. Chemistry periodicals are available for reference at the Kraus Library in Jeppson Laboratory.

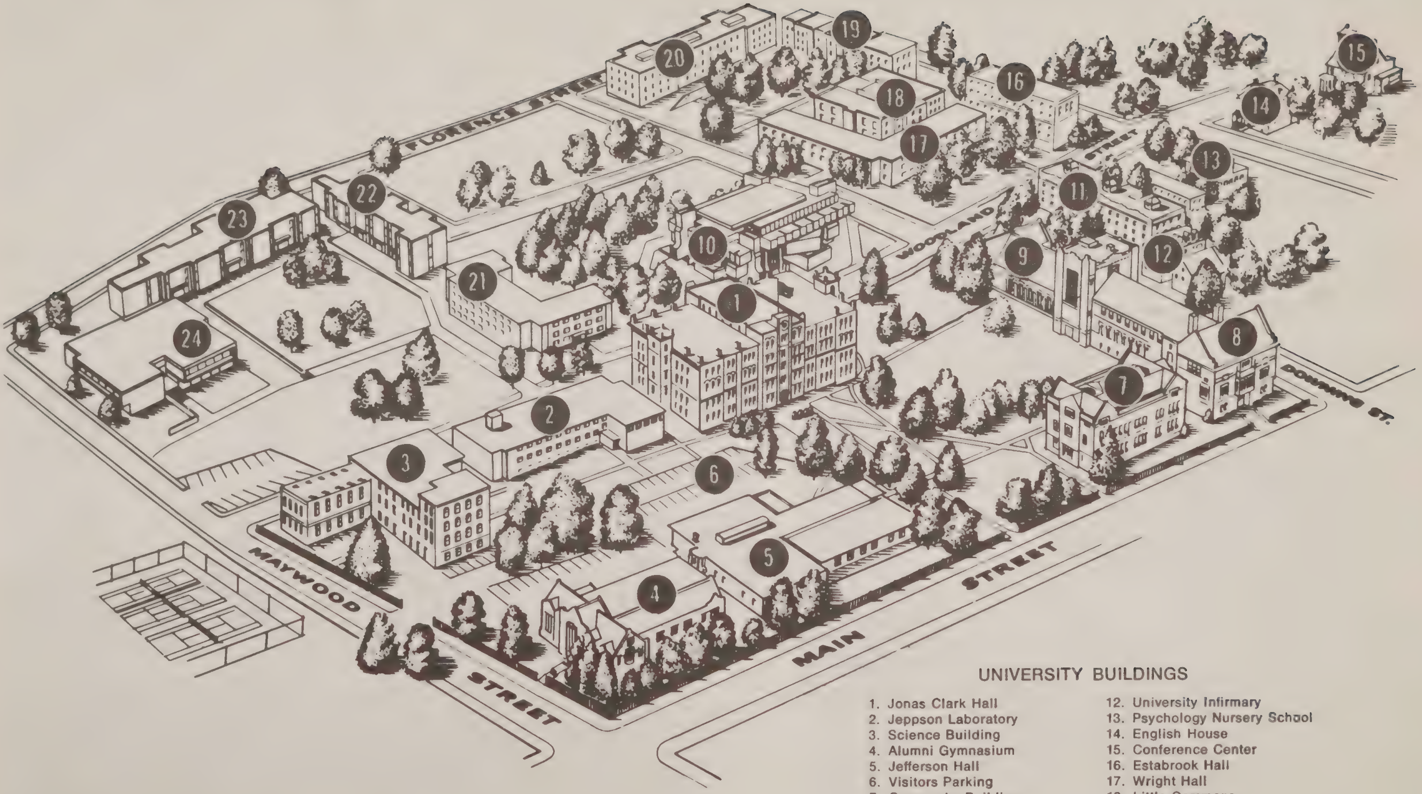
The collection reflects the history and growth of the University. The combined scholar's library of the early graduate school and the undergraduate library of Clark College have been developed through the years to serve the academic needs of the University. The richest holdings are in the fields in which graduate work has been offered for some years — biology, chemistry, economics, education, geography, government, history, international relations, mathematics, physics, psychology, and sociology. More characteristically undergraduate in content are the collections dealing with music, fine arts, language, literature, religion, and philosophy. The Library pays particular attention to major bibliographical and reference tools, and annually receives over 1,300 periodicals. The acquisition and exchange of material is coordinated with other libraries in the Worcester area.

The Robert Hutchings Goddard Library provides unusually fine quarters for the utilization of these collections. Completed early in 1969, the new building has a potential capacity of 600,000 volumes and accommodations for more than 1,000 readers, of which 65 per cent are individual study desks. Among its features are the Goddard collection and exhibit area; the Wilson Rare Book Room; special facilities for art books, record listening and microtext reading; student and faculty lounges; and an after-hours reading room.

The building is named in honor of, and as an international tribute to, Dr. Robert H. Goddard, Father of the Space Age, distinguished alumnus, and professor of physics at Clark from 1914 to 1942.



Clark University


FLORENCE STREET
WOODLAND STREET
DOWNING ST.
MAIN STREET
MAYWOOD STREET
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UNIVERSITY BUILDINGS

1. Jonas Clark Hall
2. Jeppson Laboratory
3. Science Building
4. Alumni Gymnasium
5. Jefferson Hall
6. Visitors Parking
7. Geography Building
8. The Library
9. Atwood Hall
10. The Robert Hutchings Goddard Library
11. Downing Administration Center
12. University Infirmary
13. Psychology Nursery School
14. English House
15. Conference Center
16. Estabrook Hall
17. Wright Hall
18. Little Commons
19. Sanford Hall
20. Johnson Hall
21. Bullock Hall
22. Hughes Hall
23. Dana Men's Dormitory
24. Dana Commons

The University's Future

During recent years, in a period when higher education has been confronted with unprecedented challenges, Clark has moved ahead in accordance with comprehensive yet flexible plans and an ambitious program for their achievement. The University's objectives, defined in the course of a thoughtful self-study completed in 1961, take into account both Clark's unusual history and traditions, and the critical national need for expanded educational opportunities. Reflecting these considerations, Clark's goals are to hold steadfast to its tradition as a university concerned with scholarship of the highest possible order, and to offer graduate work to and beyond the doctorate in selected fields of study. Too, the University aims to preserve — and enhance — the unusually close relationship which exists between undergraduate and graduate education at Clark, thus maintaining its most unique feature: an intellectual atmosphere which combines the spirit of creative discovery found in the large university with the intimate, personal relationships which are found in the small liberal arts college. Finally, while continuing to foster the values of smallness in every possible way, the University is undertaking planned and limited expansion to an enrollment of 2,200 students by 1972.

In pursuit of these goals, in 1962 the trustees established THE CLARK PROGRAM, a comprehensive, ten-year development effort to secure nearly $21 million in new resources by 1972. Of the total sought, $8 million is required to support endowed professorships, faculty salaries and scholarships. The remaining $12.8 million is being applied toward the realization of Clark's *Campus of Tomorrow*. Nearly $15 million in resources has been secured, and the University has been strengthened by an additional endowed professorship, the Robert Hutchings Goddard Library, two handsome $2.5 million residential centers, a new central heating plant, and a number of other significant additions to its physical and financial resources.

Recognizing the need to extend and update University plans in the light of progress and changing conditions, early in 1969 the trustees organized a 130 member University Planning Council. Broadly representative of faculty, students, alumni, trustees, staff and friends of the University, the Council will bring the wisdom and support of all segments of the University to a comprehensive planning effort to be completed during 1970. From the Council's deliberations, it is anticipated that a new long-range plan and program for Clark's development during the seventies will be established.

Bequests and Deferred Gifts To The University

Bequests have always been, and will continue to be, an extremely important means of ensuring the continued growth and strengthening of independent educational institutions such as Clark University. For persons who wish to provide for the University in their estate plans, the following basic legal forms are presented with the suggestion that they be reviewed by an individual's legal counsel. Other forms are available upon request to the Office of the President.

Unrestricted Bequest

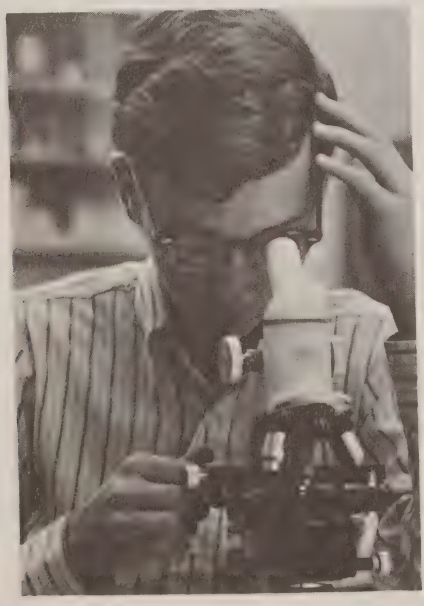
"I give and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here insert the amount of money and/or describe the personal property or real estate)."

Restricted Bequest

"I give, devise and bequeath to Trustees of Clark University, a Massachusetts charitable corporation, located in Worcester, Massachusetts (here describe the gift to be used or the income to be used) for the following purposes (here specify the purposes for which the gift or the income therefrom is to be used).

In addition to legacies, there are other methods of providing for the University in estate plans. Gift Annuities, Life Income Plans, and Trusts are available at Clark through its Deferred Gifts Program. Specific information may be obtained by writing to the office of the President. The University will be glad to consult, on a strictly confidential basis, with individuals and their counselors about these and other ways of enriching the University.

For purposes of making a gift by will to Clark, the University's legal corporate title is: TRUSTEES OF CLARK UNIVERSITY.



THE UNDERGRADUATE COLLEGE

The Academic Programs

Liberal Arts

The liberal arts curriculum provides for breadth of knowledge and understanding together with the intellectual discipline resulting from concentration in a selected field. The Bachelor of Arts program at Clark possesses a large degree of flexibility permitting adaptation to a wide variety of individual interests.

Principles of Liberal Education

Liberal education seeks to develop human beings who have a sense of personal identity, who are equipped and motivated to realize their intellectual potentialities and who are able to contribute to their own welfare and the welfare of others. This often involves a lifetime of learning, but a liberal arts college in a university can and should make a significant contribution to the attainment of such goals.

To have a sense of identity is to understand oneself as an organism in the natural and physical world, as a product of a particular civilization or society and as a person caught up in all the joys, sorrows and perplexities of the human condition. Naturally, no course or combination of courses can insure such understanding and there is no schooling that can guarantee wisdom, but there are courses in almost every field which can make a genuine contribution to this personal educational goal.

Self-realization or the actualization of one's potentialities depends in the first instance on the acquisition and improvement of fundamental skills of language, reasoning and communication. Without these skills, it is not possible either to expand one's intellectual horizons or to master a particular intellectual discipline, pursued for its own sake or for extrinsic professional or vocational reasons. Mastery of one's own language should be matched by competence in at least one other language, and to understand the processes of reasoning in many disciplines a knowledge of mathematics including the calculus is essential. Intellectual development and understanding also rest to a great extent on an appreciation of the various methods by which knowledge is acquired, theories and hypotheses are tested and judgments are evaluated. To gain this appreciation, a student should take courses which involve various modes of inquiry, e.g., the historical approach, the experimental method, logical, textual or linguistic criticism, systems analysis and intuitive insight.

It will be difficult for a student to take such courses without at the same time familiarizing himself with important ideas in each of the traditional divisions of knowledge, the physical sciences, the social sciences and the humanities.

Communication of ideas and feelings is surely not the monopoly of language, literature and mathematics, and, therefore, one should also be familiar with the expression of ideas and feelings in music and the fine arts. It has been argued, indeed, that the arts provide an insight into "reality" that is just as valid as that provided by the sciences. In any event, one cannot realize one's potentialities for intellectual and aesthetic enjoyment without exploring one or more of these artistic areas.

To contribute to one's own welfare usually demands the choice of a vocation that is rewarding psychologically or financially or both. A liberal arts education does not become illiberal when it recognizes this fact and provides opportunities for intensive work in areas which may lead to vocational involvement or when it prepares students well for graduate and professional schools. But this emphasis on pre-professional training should always be balanced by courses which emphasize the interrelationships of fields of knowledge and the values which undergird the whole intellectual enterprise and all of human society.

To suggest a concern for the welfare of others naturally implies some value judgments that are inherent in liberal education. It is to assert that a liberally educated person will assume some responsibility in public and community affairs, and that he will contribute certain analytical abilities, specialized knowledge and mature judgment to the solution of the problems of society. To prepare for this role, a person should be familiar with some basic concepts in the social sciences and should have had some experience in problem solving and in making hard choices among alternative courses of action.

It should be re-emphasized that liberal learning is a life-time pursuit, but a student may take a giant step toward the goals of liberal education by a judicious and wide-ranging choice of courses in college. In the atmosphere of freedom which Clark University seeks to promote, this choice is left primarily to the student, who is urged to take advantage of the many opportunities offered by the University.

Groups

Course credit may be obtained at the undergraduate level in the following fields of instruction which, for administrative purposes, are known as "groups."

Group A. Science and Mathematics: Biology, chemistry, experimental psychology, geology, mathematics and physics.

Group B. Social Sciences: Economics, education, geography, government, history, international relations, linguistics, philosophy, psychology and sociology.

Group C. Language and Literature: Greek, Latin, English, French, German, Spanish, Russian, and comparative literature.

Group D. Fine Arts: Art, music, and theatre arts.

Majors

A student may major in biology, chemistry, classics, economics, English, geography, German, government, history, international relations, mathematics, music, philosophy, physics, psychology, Romance languages, or sociology. A major in fine arts is offered through a cooperative program with the School of the Worcester Art Museum. A major in theatre art is offered through a program given in cooperation by Clark University, the College of the Holy Cross, and Assumption College. Courses in education, geology and Russian are offered, but majors are not available.

General Education

Many courses at Clark offer the student an opportunity to develop an intelligent and critical interest in fields of learning where he has no expectation of attaining professional competence. In choosing his program, the undergraduate is urged to supplement his major with courses of this character and with courses of an interdisciplinary nature.

Induction

Freshmen and transfer students must attend an induction program held on the campus several days before the academic year begins. During the induction program, placement examinations and other tests are given. Students attend individual and group conferences in preparation to register for a program of studies.

Academic Advising

At induction and during the freshman year, students are provided the opportunity to meet in groups and individually with faculty members in order to obtain advice regarding course program and related matters. A particular faculty adviser may be assigned upon request. Toward the end of the freshman year students are asked to indicate intended major and their preference for adviser from the major department, and advising responsibility at that point is assumed primarily by the various academic departments. Ample opportunities for academic and other advice are available for those students seeking it.

Registration

Each student is required to register for a specific program of courses before every semester. The student is given notice in advance of the dates on which registration is required. Failure to register within the announced period is penalized by a late registration fee.

Advanced Placement

Placement in advanced courses is determined by individual performance on special departmental placement examinations or, in some instances, on the Advanced Placement and Achievement Tests of the College Entrance Examination Board. College credit for certain courses completed in high school may also be granted toward the bachelor's degres on the basis of the College Entrance Examination Board Advanced Placement Tests.

Normal Programs

The undergraduate normally carries a full program of from 12 to 17 semester hours inclusive each semester. In general, a course meets three times weekly. Laboratory periods are usually three hours long. Students should consult their faculty adviser or major department when questions of course or program selection arise. Permission to carry a reduced or expanded program must ordinarily be secured from the College Board.

Undergraduate Programs

Freshmen may choose any course distinguished by the letter "F."

Tentative selection of a major is required of A.B. degree candidates at the time of registration for the sophomore year.

Sophomores may elect any course designated by numbers beginning with the numeral 1, indicating the course is primarily for undergraduates. They are not admitted to courses designated by numbers beginning with the numeral 2, except by permission of the instructor and the department chairman concerned, to whom the student must present evidence of high class standing and/or adequate preparation.

Juniors and seniors may elect any courses designated by numbers beginning with 1 or 2, indicating courses which are primarily for undergraduates or for advanced undergraduates and graduate students. The selection by juniors and seniors of these courses is subject to any conditions stated in the course description.

Under special conditions and with the approval of the Chairman of College Board and the Dean of the Graduate School in each case, seniors who rank in the upper third of their class may be admitted to courses designated by numbers beginning with the numeral 3, indicating courses which are primarily for graduate students.

January Study Period

A three-week period immediately following the mid-year recess is set aside for special projects and independent study, both on and off the campus. Programs of extracurricular activities, including athletics, drama, music and lectures, continue as usual during the January Study Period.

Readings or Special Projects Courses

Some departments offer readings or special projects courses which may be entered with the permission of the instructor concerned. No student, however, may register for more than eight semester hours of such courses during a given semester or for more than twenty-four semester hours of such courses during his college career.

Accelerated Programs

A student may earn the Bachelor's degree in less than four academic years through a combination of Advanced Placement credit, a larger than normal program of studies and attendance at summer schools.

Summer School Courses Other Than Clark's

Credit toward a degree for study at a summer school other than the Clark Summer School must be approved by the Registrar no later than Registration Day of the following semester. Students are strongly advised to confer with the Registrar prior to taking summer school courses to assure acceptability of credit toward the Clark degree.

Expanded Programs

A student whose grade point average for any semester is 2.3 or better may register for a program of more than 17 but no more than 20 semester hours for the following semester.

A senior whose graduation within the academic year depends on the completion of an expanded program during that year may register for more than 17 but no more than 20 semester hours if his grade point average for the preceding semester is 1.7 or better.

Institutional Cooperation

The Worcester college community includes Anna Maria College, Assumption College, Clark University, College of the Holy Cross, Worcester State College and Worcester Polytechnic Institute, In 1967, these colleges began a program of active cooperation to share resources as a means of providing improved educational opportunities at each institution.

These four year colleges, together with Becker Junior College, Leicester Junior College, Worcester Junior College and Quinsigamond Community College, are participating members in the Worcester Consortium for Higher Education. Initial efforts of the Consortium have included exchange of faculty members, acceptance without additional fees of students from one college in classes at another college, and joint sponsorship of specific programs of study.

The accomplishments of the Consortium so far have attracted considerable attention in higher education for they suggest practical ways in which small colleges in the same geographic area may retain the desirable features of their size and yet share the benefits of a large university system through sharing. The participating institutions are all of approximately the same relative size.

R.O.T.C.

Clark students may enroll in Reserve Officers' Training Course programs at either the College of the Holy Cross or Worcester Polytechnic Institute.

Washington Semester Program

Clark participates in the Washington Semester program of the American University in Washington, D. C. Under the program, a small number of superior students may be nominated to attend the program, usually in the junior year, studying United States government in the nation's capital. Though any student may be interested in the program, the opportunity should be particularly attractive to students majoring in government, international relations, history, economics or sociology. A credit of 15 semester hours is given for the program toward the Bachelor's degree at Clark. Inquiry and application should be made to the chairman of the Department of Government and International Relations.

Junior Year Abroad

In cooperation with such organizations as The Experiment In International Living, The Institute of European Studies, the Jacob Hiatt Institute in Israel and several American colleges and universities, Clark offers its students the opportunity of spending all or a portion of their junior year abroad. These and other programs of foreign study involving academic credit must have prior approval of the College Board.

Partial Programs

Under special circumstances, students may be permitted to register for a semester program of less than 12 semester hours. Such students are designated as part-time students.

Special Students

Special students register for such programs as they agree upon in consultation with the instructors concerned.

Pre-Professional Programs

One function of the undergraduate college is to prepare students who intend to enter a professional school or take graduate study. Students entering Clark may gain this basic preparation through the selection of the appropriate major. A student planning a professional career should consult with his adviser as early as possible in his college career to best select an undergraduate program.

Pre-medical or pre-dental students can satisfy requirements for entrance into a medical or dental school by taking necessary basic courses in biology, chemistry and physics. Such students should consult with the Chairman of the Pre-Medical and Pre-Dental Advisory Committee. For students planning careers in teaching, Clark offers courses necessary for state certification. It also offers a graduate program in education. For information concerning teaching requirements, consult the Education Department section under the listing of "Departments and Courses."

Pre-law students are not limited to the selection of a particular major or a fixed group of studies; some attention to the social sciences is generally favored. Undergraduates planning to attend law schools are advised to seek a broad liberal arts education.

Requirements for a Bachelor's Degree

General Requirements

Residence: Normally at least sixty semester hours of the total one hundred and twenty semester hours required for the Bachelor's degree must be taken at Clark University. Of these no fewer than thirty of the last sixty semester hours must be completed at Clark. Permission for a student to take all or part of his work during the senior year at another institution may be granted, by the College Board only, in exceptional circumstances, especially when an unusual educational opportunity is presented.

Course Requirements: All College regulations concerned with credit toward a degree are expressed in terms of semester hours. In undergraduate courses, a semester hour as a unit of credit normally implies one class meeting of approximately fifty minutes in duration or one laboratory exercise of two or three hours duration per week throughout one semester. One hundred and twenty semester hours at a satisfactory level of scholarship are required for the Bachelor's degree.

Major Requirements

Major: A departmental major consists of from forty to fifty semester hours chosen from courses designated by the department for the purpose. At least half but no more than three-quarters of these semester hours must be in the major subject; the remaining hours must be in related fields of study as designated by the department. No department may *require* a student to take more than fifty semester hours in the major and related fields, but a student may take more than fifty semester hours if he meets the other requirements for graduation. A grade point average of at least 2.0 must be attained in at least forty semester hours of courses in the major and related fields.

Mathematics 12 is normally a requirement for all students intending to major in Group A — Science and Mathematics.

Other Requirements

A student must take and pass courses equaling at least 36 semester hours outside the Group (A, B or C-D) in which he is majoring or alternatively (at the direction of his major department) outside those major and related fields or courses designated for this purpose by his major department and approved by the Academic Council.

Academic Regulations

Grades

Grades are reported to each student at the end of each semester. The grades are A—excellent; B—good; C—average; D—poor; F—failure, and P—pass. The modifying symbols, plus and minus, are used with each of these letter grades, except F and P, giving 13 levels of passing grades. A report of incomplete may be permitted only when sickness or some other unavoidable circumstance prevents the completion of a course.

A *grade point average* is determined for each student at the end of each semester by multiplying the credit in semester hours of each course in which the student is registered by a *grade point* or numerical equivalent of the letter grade received by the student and dividing the result by the total number of semester hours for which the student is registered. The grade points used for the calculation of averages are as follows:

A+ = 4.3　B+ = 3.3　C+ = 2.3　D+ = 1.3　F = 0
A = 4.0　B = 3.0　C = 2.0　D = 1.0
A— = 3.7　B— = 2.7　C— = 1.7　D— = 0.7

A record of failure in a course is final and not subject to change on the basis of any subsequent performance of the student who is involved. Credit for a course in which a failure has been reported may be secured only by repeating the course and earning a passing grade.

A record of incomplete incurred in the first semester must be made up no later than the following April 1; if incurred in the second semester or summer term, it must be made up no later than the following October 15. If a course is not completed within the specified time, the record of incomplete is changed to one of technical failure.

Pass-No Record

A student may at the time of final semester registration in no more than four semesters choose one course for which he will either receive a P or, in the event of failure, have no evidence of the course entered on his permanent record, provided that no such course may be used in partial fulfillment of major requirements, (and provided that the total semester hours so chosen do not exceed 16.) A department may with the approval of the Academic Council designate certain courses which may not be chosen by students on this basis.

Reporting Grades To Outside Sources

Unless a student indicates in writing to the Dean of the College that he wishes it not be done in his case, information concerning academic performance will be released upon request to high schools attended by the student, to scholarship sources, to prospective employers and to selective service boards.

Withdrawal From Courses

A student may, by presenting an appropriate withdrawal form to the Registrar, be allowed to withdraw from a course without a record of failure at any time during the first four weeks of classes, regardless of the grade he has thus far attained in that course, providing that, after withdrawal, he is carrying no fewer than twelve semester hours.

At any time after the first four weeks of classes and up until two class-weeks before the beginning of the final examination period, the Chairman of the College Board may permit a student to withdraw from a course without a record of failure providing the student is not failing that course at the time of request and that after withdrawal he is carrying no fewer than twelve semester hours.

Course Changes

A student may register for a course without special permission anytime up to the end of the second week of classes. Between the second week and mid-semester he may enter with the permission of the instructor and adviser (without petition).

Academic Standards

Candidates for the Bachelor's degree must obtain a final cumulative average of at least 1.85 in all courses taken at Clark.

Classification of Students

All students who have not been required to withdraw at the end of a given semester will be promoted if they have satisfactorily completed the following semester hours:

To the sophomore class	24 sem. hrs.
To the junior class	54 sem. hrs.
To the senior class	84 sem. hrs.

Probation

Freshmen and Sophomores who receive a semester grade point average of less than 1.60, Juniors and Seniors who receive a semester grade point average of less than 1.70, and students who receive more than one failure in any semester will automatically be placed on probation.

Dismissal

Students will ordinarily be required to withdraw after two consecutive or three non-consecutive probationary-level semesters.

Examinations

Final examinations are regularly given at the end of each semester in most College courses. Approximately one week is set aside for each examination period and an attempt is made to distribute the examinations for any individual student throughout this period. Absence from a final examination, except for the most compelling reasons, may result in a record of failure in the course. Other examinations and tests may be given at any time during the semester at the convenience of the instructors.

Class Attendance

The College has no class attendance requirements. However, instructors have the prerogative of establishing such requirements for their own courses.

Leaves of Absence

A student who is in good standing may apply to the College Board for a leave of absence, after which he may return to the University without formal application for readmission.

Honors, Awards, and Prizes

Annual Honors

First honors and second honors are awarded at the end of each year to members of the freshman, sophomore and junior classes who have, in the judgment of the College Board, distinguished themselves by their scholarship during the year.

Course Honors

The bachelor's degree may be awarded *cum laude, magna cum laude* and *summa cum laude* to students whose records, in the judgment of the College Board, warrant this distinction.

Departmental Honors

A student may elect a program leading to a bachelor's degree with honors in a particular subject at the beginning of the junior year and, in some cases, at the beginning of the senior year. Under this plan, the department appoints an honors adviser who assists the student in planning a unified program of courses for the junior and/or senior years. The program may include a maximum of twenty-four semester hours in which the student works with a large measure of independence under the supervision of the adviser. In the senior year, the student must pass a comprehensive examination given by the department.

Students may apply in writing to their major department for permission to take honors work, not later than May 1 in the sophomore year or, in some departments, in the junior year. Department approval is necessary for admission to such work. In exceptional cases and in certain departments, application may be made and admission approved by the department concerned as late as the first two weeks of the senior year but only with consent of the College Board.

Admission to an honors program does not relieve the student from any of the standing regulations. A student's candidacy for honors will be terminated at the end of any semester in which he has not maintained a standard satisfactory to the department in which he is doing honors work. If candidacy is terminated for any reason, the amount of credit to be allowed for honors courses will be determined by the College Board in consultation with the major department.

The department may recommend the student's graduation with honors, high honors or highest honors, the recommendation to occur at the conclusion of the honors program.

Phi Beta Kappa

The Society of Phi Beta Kappa, founded at the College of William and Mary in 1776, is dedicated to the recognition and encouragement of outstanding scholarly achievement in liberal studies. The Clark Chapter, Lambda of Massachusetts, was established in 1953. Each year, a limited number of juniors and seniors are elected to membership on the basis of distinction in programs which are clearly liberal in character, with due consideration of evidence, both formal and informal, of high scholarship and creativity.

Other Honorary Societies

Omicron Delta Epsilon: National Honor Society in Economics.
Delta Phi Alpha: National Honor Society in German.
Gamma Theta Upsilon: National Honor Society in Geography.
Phi Sigma Tau: National Honor Society in Philosophy.
Sigma Pi Sigma: National Honor Society in Physics.
Psi Chi: National Honor Society in Psychology.

Prizes and Awards

David Potter Prize for Excellence in Biology: $100. awarded annually in September to the Senior Biology Major who has the best overall academic record and who has demonstrated research ability. The prize was established in 1967 by Dr. and Mrs. Warren Litsky to honor the memory of the former department chairman.

The David Potter Scholarship in Biology: Awarded annually to an outstanding Clark student primarily for a course of summer study at a marine laboratory. Established in 1959 in appreciation of the many years of unstinting educational leadership and friendship which Professor David Potter, member and chairman of the biology department from 1924 to 1959, gave his colleagues.

Homer Payson Little Award in Geology: Provided by a group of interested alumni, the award is presented each Spring to that student who has achieved the highest record in geology classes during the year. The award is named in honor of the late Dr. Little, professor of geology and Dean of Clark College from 1922 to 1954.

Prentiss Cheney Hoyt Poetry Prize: A prize of $25 is awarded annually by the English Department for the best poem by an undergraduate. The prize money is received from a fund established by alumni as a memorial to Dr. Hoyt, a professor of English at Clark from 1909 to 1920.

Loring Holmes and Ruth Dodd Drama Contest: A prize of $50 is awarded by the English Department to the student writing the best one-act play. Dr. Dodd was professor of English at Clark from 1910 to 1949 and was chairman of that department.

Physics Achievement Award: Each year, the student in Physics 11 who, in the opinion of the instructor, shows the best performance and improvement in the course work is given a copy of the *Handbook of Chemistry and Physics,* made available by the Chemical Rubber Publishing Company.

Chemistry Achievement Award: A copy of the *Handbook of Chemistry and Physics* is awarded each year to the student who ranks at the top of the class in Chemistry 11.

American Institute of Chemists Award: A medal is awarded by the Chemistry Department each year to a senior chemistry major who demonstrates a high potential for the advancement of chemistry.

Ahepa Greek Prize: A prize of $25 is awarded each year to the best student in Elementary Greek. The prize is made available by the Worcester chapter, Order of Ahepa.

Tuition and Other Charges

General Information

Undergraduate tuition, fees and other charges for 1969-70 are listed below. Charges for the Evening College and the Summer School can be found in their respective catalogs. Tuition, fees and other charges for graduate students are listed under the catalog section on The Graduate School.

Tuition, board, dormitory charges and certain fees are due and payable at the beginning of each semester. These dates for 1969-70 are *September 8* for the first semester and *February 9* for the second semester. No one is permitted to register for any semester until all financial obligations have been satisfactorily arranged with the University. A penalty fee is levied for late registration and late payment of charges.

Tuition

Tuition for each semester is based on a normal program of from 12 to 18 semester hours inclusive. Students who enroll for more or less than the normal program are charged at the rate of $91.67 a semester hour.

Special students are also charged at the rate of $91.67 a semester hour.

Consolidated Fee

Beginning in 1968, the University merged a large number of special fees formerly charged separately for laboratories, matriculation, graduation, etc. into a single uniform consolidated fee of $25.00 a semester.

Refund

A student who withdraws during the first week of any semester is allowed a refund of 80 per cent on tuition; during the second week, 60 per cent; during the third week, 40 per cent; during the fourth week, 20 per cent; after the fourth week there is no refund. There is no refund on other charges, except board, when a student withdraws from the University.

When a student has left, but not withdrawn from the University on the advice of a doctor within the first four weeks of a semester, and a decision is made later that the student must withdraw, tuition refund is made retroactive to the date of the doctor's recommendation, based on the schedule described above. A detailed statement of the refund policy may be obtained in the General Office.

Board

Undergraduates may elect one of several food plans which are available on an experimental basis for the 1969-1970 academic year.

Contingency Deposit

All undergraduates are required to pay a $25.00 deposit to cover minor charges, such as property damage, which may be incurred during the year. They are billed each year for whatever charges are incurred; the balances are refunded upon completion of their studies.

Dormitory Residence and Deposit

All single undergraduates, with the exception of seniors and those living with their families, ordinarily must live in University-operated dormitory facilities. When the number of students required to live in the dormitories exceeds the number of spaces available, as typically happens, some students will be allowed to live off-campus upon request. The specific students allowed to do so are determined on the basis of age, class status and financial need.

A dormitory deposit of $50.00 is required each spring of upperclassmen to reserve a place in a dormitory. It is credited toward the dormitory charges. The deposit is forfeited if the student does not enroll for the specified semester.

Student Activity Fee

A fee of $30.00 per semester, levied and administered by the Student Council, is required of all undergraduates, including part-time students, but not special students. It pays for admission to and participation in a wide range of cultural and recreational activities.

All students are expected to subscribe to the student insurance plan which gives year-round coverage for health and accidents, unless they are similarly protected by other insurance. A fee of $30.00 is charged.

Application Fee

A fee of $15.00 must accompany the application for admission to the College. It is not refundable.

Admission Deposit

A deposit of $200.00 is required of applicants when they accept the University's offer of admission. It is credited toward charges for the first semester. The deposit is forfeited if the student does not enroll for the specified semester.

Tuition Deposit

A deposit of $200.00 is required of all students planning to return to the University for their sophomore, junior or senior years. It is payable by *July 1*, and is credited toward charges for the fall semester. The deposit is forfeited if the student does not enroll for the specified semester.

Key Deposit

Deposit for keys may be required of the student for entrance to buildings, laboratories, personal lockers or mail boxes.

SUMMARY OF TUITION AND OTHER CHARGES

Tuition	Full Program (12 to 18 semester hours)	$1100.00 per semester
Consolidated Fee		$ 25.00 per semester
Board		Approximately $ 300.00 per semester
Dormitory Charges	Room rent (single)	$250.00 to $287.50 per semester
	Room rent (double)	$200.00 to $237.50 per semester
Activities Fee	Fee	$ 30.00 per semester
Other Fees	Application (undergraduate)	$ 15.00 per semester
	Health and Accident Insurance	$ 30.00
	Transcripts (no charge for first one)	$ 1.00
Deposits	Admission (Freshmen)	$200.00
	Tuition (Upperclassmen)	$200.00
	Dormotory	$ 50.00
	Contingency (see page 39)	$ 25.00

Student Services

Dining Halls

Dining halls in Little Commons, Jefferson Hall, and Dana Center are operated for the convenience of students and staff of the University. Service is cafeteria style. The snack bars in Jefferson Hall and Dana Center are open to all members of the Clark community.

Dormitories

With the exceptions noted on page 39, all resident undergraduates must live in University operated dormitory facilities. Rooms are reserved on receipt of the dormitory deposit fee which is later applied to room rental charges. Parietal rules: Residents of each dormitory determine the visiting hours for members of the opposite sex.

Infirmary

The University Infirmary provides for minor medical services to all students and temporary in-patient care for resident students. A full-time nurse and a part-time physician are in attendance. Other physicians, other health specialists, and hospitals are available in Worcester.

Health and Accident Insurance

Subscription to a low-cost health and accident insurance plan covering ordinary medical expenses not covered by the University is urged of all students unless they are similarly protected by other insurance.

Psychological Services Center

A psychological service center on campus provides testing and counseling service to students who wish help in academic or personal adjustment. If desired, other more appropriate University or community resources can be recommended to the student. The staff includes the Center director, Dr. Roger Bibace, and other clinical psychologists in the Department of Psychology and consultants in psychiatry, psychiatric social work and clinical psychology.

Career Planning and Placement Center

Students and alumni of the University may use the services and facilities of the Career Planning and Placement Center, which include: a library of graduate school directories and catalogs; vocational testing; aids and help in reading and effective study techniques; information on destinations of Clark graduates in careers and acceptance to graduate study; on campus interviews with representatives of employing organizations and complete lifetime placement service. Counseling services adjust to requests of students/alumni and may involve factual material related to questions of curriculum choice, consideration for exploration of vocational possibilities, or response to concerns of a personal nature.

These services are offered with the conviction that study at the undergraduate and graduate level is most successful and meaningful when pursued within the context of preparation for a career. The liberal arts tradition does not, of itself, have a vocational orientation. It is through the services of the Career Planning and Placement Center that students may explore the ultimate impact and possibilities of their education.

Student Life

The Clark community is a liberal environment in which students are regarded as citizens fully participating in rights and liberties and, therefore, expected to take primary responsibility for the social as well as the intellectual aspects of their lives. Making an assumption of maturity about students, the University operates with a minimum of social regulations.

Clark is a college for intellectually-committed students who are willing and able to carry the responsibilities that accompany living and working in an atmosphere of freedom and self-determination.

Student Government and Participation In Institutional Decision Making

The Student Council, elected by the student body each spring, is an active influence in the social, cultural and political activities of the campus. It is concerned with general campus governance, and disburses the funds raised by the student activities fee, which it levies, among the various student organizations.

Students are represented on several important University committees, and have ready, less formal daily access to faculty and administration which enables them to play an important role in the making of policy and the effecting of changes.

Communications

Students publish *Scarlet* and *Anthem,* weekly newspapers; *Helicon,* a literary magazine; *Fotch,* a humor magazine; and *Pasticcio,* a yearbook. A campus radio station, WCUW, broadcasts approximately 70 hours per week.

Cultural Events and Activities

Noted scholars, musicians, artists, performing groups and public figures, sponsored by the University and various campus groups, are brought to Clark for lectures, performances and concerts. Among those heard in 1968-69 were: Roman Jackobson, Senator Edward M. Kennedy, Ann Sexton, Noam Chomsky, Julian Bond, Julian Bream, Janis Joplin, and the Grateful Dead.

Campus musical groups open to student participation include the University Chorale, Instrumental Ensemble, Madrigal Singers and an opera group.

The Clark University Players Society and the Experimental Theater present dramatic offerings with student casts.

The Clark University Cinema and other campus groups, present foreign and domestic films, both conventional and experimental in nature. Student-produced experimental films are also occasionally presented.

The city of Worcester also offers cultural opportunities, such as a Musical Festival in the fall featuring the Detroit Symphony Orchestra, and such as the Community Concert Series. The Worcester Art Museum, world famous for its outstanding collections and art school, sponsors numerous lectures, movies and concerts. Neighboring academic institutions also sponsor programs which are available to members of the Clark community.

Social Activities and Organizations

Dances and a variety of concerts are sponsored by the student Social Affairs Board. Fall and Winter Weekends are two major social events; smaller dances and parties are provided by four fraternities, all of which own houses near the campus. An on-campus, student run Coffee House in the Dana Commons sponsors a variety of programs.

Campus Organizations

There are student organizations affiliated with academic departments, such as the Physics, Psychology and German clubs, and others related to hobbies or interests, such as the Chess Club, the Debate Society, Pre-Law Club, Sports Car Club, and Photography Club.

Religious organizations include the Christian Fellowship Organization, Clark Christian Association, the Newman Club and Hillel Counselorship.

Scarlet Key, an honorary service society open to men and women, organizes tours for campus visitors and in other ways aids in the hosting of University guests and the introduction of new students to the campus.

Gryphon and Pleiades, the men's and women's senior honorary societies, play important roles in innovating new programs and in maintaining many of the College's traditions.

Social Action Activities

Many Clark students are concerned about issues of war and peace, civil rights and poverty. Frequently they participate in national programs and in community action groups and initiate campus organizations, lectures, discussions and debates to confront these critical issues.

Physical Education and Athletics

Programs are designed to stimulate and encourage students to wider participation in physical activities to promote health and mental efficiency and lead to continuing participation throughout life. Participation is voluntary.

Men's Programs

Men may choose activities in the following areas:

1. *Intercollegiate Athletics*

For men with a reasonably high level of skill and a well defined and strong interest in athletic competition, intercollegiate schedules at the Varsity and Freshman levels are arranged in baseball, basketball, golf, eight-oared shells, soccer, tennis, track and cross-country.

2. *Intramural Athletics*

The opportunity to gain some of the benefits of participation in competitive athletics is offered to all students through organized intramural competition in touch football, basketball, volleyball, tennis, handball, table tennis, paddle rackets, and softball.

3. *Physical Education Classes*

Instruction and practice is offered in a wide variety of activities including work with a number of team games, individual and dual sports, apparatus, and calisthenics.

Women's Programs

Students may participate in archery, badminton, basketball, fencing, field hockey, golf, horseback riding, tennis, softball, volleyball and in several dance activities, including folk, square and modern dancing. Women use their own gymnasium for practice but have the use of the Alumni Gymnasium for games with outside organizations.

Eligibility

Students carrying less than a full program of studies are ineligible to participate in organized extracurricular competitive athletics unless the reduced program permits graduation at the end of the year in which the program is carried. A student transferring with advanced standing from another four-year college is ineligible for one calendar year from the date of registration at Clark to participate in any varsity sport. Special students are not normally entitled to participate in competitive intercollegiate sports.

Association Memberships

Clark University is a member of the National Collegiate Athletic Association, the Eastern College Athletic Conference, the New England College Athletic Conference and numerous sports associations.

Admission

Freshman Admission

Clark University welcomes applications for admission from men and women and accepts all students without regard to race, creed, color or national origin. Selection is on a competitive basis, and is based primarily on academic promise as indicated in secondary school performance, teacher recommendation and Scholastic Aptitude Test scores; and secondarily on such non-academic factors as breadth of interests, activities, and abilities.

Applications

Candidates for admission are encouraged to submit their applications as early as possible during the first semester of their final year of secondary school education. All applications must be received by *February 1. Early decision* candidates must file complete applications by *November 1.* An application fee of $15.00, non-refundable, must accompany each application.

Entrance Requirements

General: The completion of a four-year high school program or its equivalent, including a minimum of 16 acceptable units of credit, is required for admission to the freshman class. (The term "unit" means a course of study in one subject taken through a school year.) Official records from all secondary schools attended must be submitted.

Subject-Matter Requirements: For admission to the freshman class the subject-matter requirements are as follows:

Required Subject, 8 units

English	4 units
Mathematics (algebra and geometry) (Applicants planning to specialize in science or mathematics are advised to present three or more units of mathematics.)	2 units
Foreign Language (in a single language)	2 units

Electives, 5 or more units

Social Studies (history, government, civics, etc.)	1 to 4 units
Natural Sciences (biology, chemistry, physics, etc)	1 to 4 units
Mathematics	1 to 2 units
Foreign Language (A single unit in a beginning foreign language is not acceptable.)	1 to 4 units

Other Electives, not more than 4 units

Subjects recognized by the applicant's secondary school in its regular program, at the discretion of the Admissions Committee.

Entrance Examination Requirements: All applicants must arrange during their senior year to take and submit the results of the Scholastic Aptitude Test, as administered by the College Entrance Examination Board, prior to final consideration by the Admissions Committee.

Applicants are required to submit the results of three Achievement Tests of the College Entrance Examination Board including the senior year English Composition Achievement Test. The remaining two tests are his free choice, unless a student is taking a foreign language during the final year of secondary education and plans to continue it upon entrance to Clark — in which case the Achievement in the language should be submitted.

Senior year Achievement Tests are preferred. However, Achievements taken at the end of a terminal course of study are accepted.

Further information concerning these testing programs may be obtained from the applicant's secondary school guidance counselor, or from the College Entrance Examination Board. The College Entrance Examination Board may be addressed in the East at Post Office Box 592, Princeton, New Jersey; in the Far West at Post Office Box 9896, Los Feliz Station, Los Angeles 27, California.

Tours and Interviews: Interviews are available to prospective students who wish them; however, they are not required. Candidates for admission are encouraged to schedule a campus tour. Students planning to visit the campus are asked to write or call the Admissions Office for information concerning available times for tours and interviews.

Basic Freshmen Expenses

Basic expenses in the Freshmen year at Clark are approximately $3310 to $3485, as follows:

Tuition		$2200
Board		600
Room		$400-575
Fees		110
Comprehensive	$50.00	
Activities	$60.00	
		$3310-3485

A schedule of all University undergraduate charges appears on page 40.

Notification of Admission and Deposit

Time of notification of admission to the incoming freshman class is at the discretion of the Admissions Committee, and will normally begin on or about April 15. Students who have applied for *Early Decision* will be notified of the Committee's decision on or about December 1.

Upon receipt of a formal offer of admission a student will be required to indicate acceptance of the offer by making an admission deposit of $200, non-refundable, to reserve a place within the incoming class. This deposit will be credited towards the charges for the first semester.

Housing Arrangements

All single freshmen not living with their families must live in residence within University operated dormitory facilities. Rooms are assigned during the summer prior to the arrival of the freshman class. Inquiries concerning living arrangements should be sent to the Office of the College.

Transfer Applicants

Clark University will consider applicants for transfer from four-year colleges and universities, and two-year colleges. Normally only those students seeking entrance in the fall and at the junior level are considered. The application deadline is April 15.

Transfer Requirements

All applicants for admission under the transfer program are required to submit evidence of honorable dismissal, complete transcripts of all previous academic records, including the results of all College Entrance Examination Board tests, and such other information as the Admissions Committee may request.

Transfer Credit

Credit is normally given for courses previously taken at accredited colleges or universities if these courses are comparable to those offered within the Clark University curriculum. Credit for courses previously taken at non-accredited colleges is granted only on a provisional basis to be evaluated upon successful completion of two semesters of work at Clark with a cumulative average of 1.7. No credit is given for any course completed with a grade lower than C-minus.

Evaluation of credits for college courses completed elsewhere is made at the time of a student's first registration at Clark and is used in planning his course program and in classifying him provisionally as a freshman, sophomore or junior.

A graduate of the three-year course of the School of the Worcester Art Museum may be admitted as a candidate for the degree of Bachelor of Arts with the rank of junior in the College. In such cases the usual admission requirements must be met and the general subject-matter requirements for the degree must be satisfied.

Foreign Students

While Clark welcomes applications from foreign students, it is unable to provide financial aid to cover the major portion of a foreign student's educational expenses. Each foreign student accepted for admission must have medical insurance, preferably that available from the Institute of International Education.

Applications from foreign students must be submitted by April 10. Foreign students whose native tongue is not English must be able to satisfy the University requirements for proficiency in the English language.

Special Students and Auditors

Persons who are not prospective degree candidates, who may wish to take advantage of the opportunities for study provided by the University and who give satisfactory evidence of adequate preparation for the work which they wish to undertake, may apply for admission under the status of Special Student. Enrollment in this category is limited. Inquiries concerning this category of student should be addressed to the Office of Admissions.

At the discretion of the administrative officers of the University, Auditors, registered for attendance but not for credit, may be admitted. They are required to pay the regular tuition rates and the matriculation fee, but are not enrolled as students.

Summer School and Evening College

Persons who may wish to be candidates for a degree from or who may wish to take advantage of the opportunities for study provided by the Summer School or The Evening College are invited to send inquiries concerning admission, programs available, or other questions to the Office of the Director of The Evening College and Summer School, Clark University.

Withdrawal

The University reserves the right to require the withdrawal of a student whose academic performance or conduct fails to meet required standards.

Financial Assistance

General Information

Scholarships, grants and loans are provided by the University from endowed and special funds, as well as from various public and private sources.

Scholarships

Scholarship aid is awarded on the basis of financial need and ability. Jonas Clark Scholarships are awarded for four years contingent upon continued financial need (as evidenced by the Renewal Parents' Confidential Statement) and academic achievement. All scholarships (with the exception of freshman scholarships) are reviewed each semester for academic achievement. Upperclassmen with satisfactory academic records may apply for financial aid at the beginning of any semester. To do so, they must submit the Renewal Parents' Confidential Statement, which may be obtained from the Financial Aid Office of the University. In general there is no financial aid available for transfer students.

Incoming freshmen applying for financial assistance do so through the College Scholarship Service, Box 176, Princeton, New Jersey or, for the Far West, Box 27896, Los Angeles 27, California. The service provides the University with an independent analysis of the applicant's financial needs. The application (Parents' Confidential Statement) may be obtained at the student's secondary school or from the College Scholarship Service and should be submitted to the College Scholarship Service at the same time that the student applies for admission. In order to receive financial aid consideration at Clark the Parents' Confidential Statement must be submitted prior to *February 1*. No other financial aid application is necessary. Scholarship applicants are notified about financial aid awards at the time they receive notification of acceptance.

Upperclassmen must reapply annually for financial aid by submitting the Renewal Parents' Confidential Statement, which may be obtained from the Financial Aid Office of the University.

Financial assistance awards may fluctuate from year to year as a student's need varies.

Grants

The Federal Educational Opportunity Grants are part of a new Federal program of assistance to college students. They are grants, not loans, and are renewable on a yearly basis. The grants are specifically set aside for students from low income families.

Loans

Students who find it necessary to borrow money to continue their education may do so through various sources:

The National Defense Act Student Loan Program provides funds for long-term loans which bear no interest until a student has completed full-time study. Normally a person borrowing from these funds will repay the amount over a ten-year period. National Defense Student Loans are granted on the basis of financial need and available funds. All National Defense Loan commitments are made contingent on Congressional appropriation of funds annually for this program.

Guaranteed Loan Program: Under Title IV of the Higher Education Act of 1965, a loan program designed primarily for middle income families has been created. Undergraduates may borrow up to $1,000 yearly; graduate students up to $1,500. Students whose families have adjusted incomes of $15,000 or under will have a portion of the interest paid by the Government. Since the program is not completely operative in all states at this time, it would be advisable for students interested in this program to contact their local banks, who administer this program.

Other Loan Programs: Commercial deferred or extended payment plans such as various State Loan Programs, and private tuition payment plans also are available and should be carefully considered by the applicant.

Part-Time Employment

Employment for undergraduates is coordinated through the Financial Aid Office. There is work available in various offices and departments and in the Worcester Community. The University also expects that students receiving Financial Aid will work during summer vacations.

Work-Study Program

The University actively participates in the College Work-Study Program (Title I, Part C) under the Economic Opportunity Act of 1964. Qualified students from low-income families may obtain further information about this program from the Financial Aid Office of the University.

Further details on all forms of financial aid at the University may be obtained by writing to the Financial Aid Office.

Automobiles

Students receiving financial aid are expected not to maintain or operate motor vehicles while in attendance at the College.

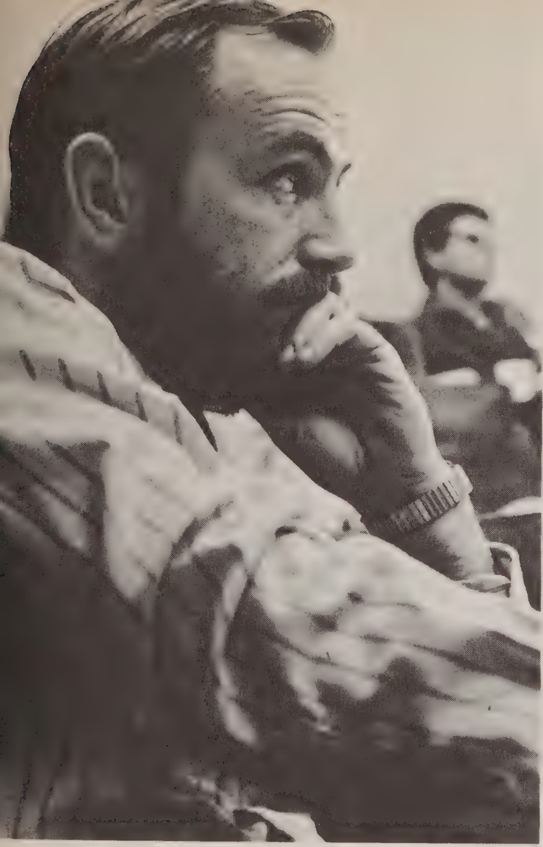
Scholarship Funds

The following scholarships are currently available from University funds for undergraduate students. Because of the various restrictions placed on these funds, it is the policy of the College to select eligible recipients rather than students applying directly for them.

The Reginald Bryant Allen Fund
The Alumni Group Scholarship
The Worcester Art Museum Scholarships
The B'nai B'rith Scholarship
The Gertrude and William Brodie Award
The Charles W. and Annie L. Bruninghaus Fund
The Charles T. Bumer Memorial Scholarships
The Jonas G. Clark Scholarships
The Clark University Faculty Women's Club Scholarships
The Albert C. Erickson Scholarship
The A. D. Ross Fraser Scholarship
The Aaron Fuchs Memorial Scholarship Fund

The Bertram L. and Bessie T. Handleman Fund
The High School Basketball Tournament Scholarship
The Gertrude & Eva Hillman Scholarship
The Ellis-Hubley Competitive Scholarship
The M. Hazel Hughes Scholarship
The Levi Knowlton Fund
The Homer Payson Little Scholarship in Geology
The Livermore and Ambulance Scholarship
The National Council of Jewish Women Scholarship
The Alice Friend Newton Memorial Scholarship
The Abraham Persky Scholarship Fund
Pleiades Scholarship
The Charles B. Randolph Fund
The Helen Brewster Randolph Memorial Scholarship
The Jennie L. Richardson Scholarship
The William Richardson Scholarship
The Sanford Memorial Scholarship
The Henry L. Signor Scholarship
The Whitman Scholarship
The Henry A. Willis Scholarship

THE GRADUATE SCHOOL



The Graduate School

General Information

Clark University was initially established in 1887 as the second graduate institution in America. Its faculty and graduates have endowed the University with an impressive record of accomplishments through the years. Under the administration of the Graduate Board, Clark offers programs leading to master's and doctor's degrees to qualified holders of a bachelor's degree or its equivalent of attainment.

Master of Arts degrees are offered in the fields of biology, biomedical engineering (in cooperation with Worcester Polytechnic Institute), chemical physics, chemistry, economics, education, English, geography, government, history, international relations, mathematics, physics, psychology and sociology. A Master of Arts in Teaching is offered in Romance Languages. The Master of Business Administration degree is offered by the University and is described elsewhere in the catalog.

Doctor of Philosophy degrees are offered in biology, chemistry, chemical-physics, economics, geography, history, international relations, mathematics, physics and psychology. A Doctor of Education degree is offered by the Department of Education.

Post-doctoral training is conducted in geography, psychology and the sciences. Inquiries should be addressed to the chairman of the department concerned.

Departments which do not at present accept candidates for graduate degrees may offer courses which are suitable for inclusion in a program of graduate study.

Scholarships and fellowships are listed at the end of this section. Additional information concerning departments and their offerings will be found in the section entitled "Departments and Courses."

Inquiries

Inquiries by students in American institutions concerning specific programs of graduate work should be addressed to the chairman of the department concerned. Inquiries by foreign students should be addressed to the Dean of the Graduate School.

Admission To The Graduate School

Admission to the Graduate School may be granted only by the Credentials Committee of the Graduate Board on the recommendation of a department of the University. Admission to the school does not imply admission to candidacy for a degree.

Application: A prospective applicant from an American institution should communicate with the department in which he expects to do his major work. If he is encouraged by the department to make application, he will be provided with an application form which must be accompanied by the $10 application fee. These should be returned to the chairman of the department. In addition, the applicant should arrange to have an official transcript of his undergraduate, and any subsequent work, and three letters of recommendation from persons who are competent to judge his qualifications for graduate work sent directly to the chairman of the department concerned.

Departments may request the submission of additional material, and most require a record of attainment in the Graduate Record Examination given by the Educational Testing Service, Princeton, New Jersey. All applicants are urged to take, and to submit the results of the Graduate Record Examination verbal, quantitative and advanced tests.

A foreign student, if encouraged by the Dean to make formal application, should provide a certified English translation of his official record (if not in English), evidence of English proficiency, preferably by his score on TOEFL (administered by the Educational Testing Service, Princeton, New Jersey), at least two letters of recommendations and a statement concerning his financial resources, or agency support.

Applications for both admission and for financial aid should be completed not later than *February 20* if the applicant intends to begin his studies in the following September. Applications may be submitted, however, throughout the year and are periodically considered by the Graduate Board.

Admission: Admission to the Graduate School is granted for entry only at a specified time and lapses if the student fails to enter at that time. Admission as special or part-time graduate students may be granted to qualified applicants who do not wish to work for a degree or who cannot devote full time to study.

If a student, when admitted, was a candidate for a degree elsewhere, he must arrange upon receipt of the degree to have a supplementary transcript, including a notation of the degree conferred, sent directly to the Dean of the Graduate School.

Master of Arts

Residence: An Academic year (*twenty-four semester hours*) of study in residence is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at Clark University under the immediate personal supervision of at least one member of the University faculty.

Foreign Language: A reading knowledge of a foreign language may be required of candidates for the degree of Master of Arts at the discretion of the major department. Language or other special requirements are included in the department announcements in the catalogue.

Candidacy: Application for admission to candidacy for a master's degree should be filed with the Dean of the Graduate School not later than the first week of the last full semester which the student expects to spend in residence as a candidate for this degree.

Applications will be considered by the Graduate Board when the student has completed one semester of full-time graduate work or its equivalent in residence at the University and obtained the written endorsement of his major department.

Candidacy for the degree of Master of Arts is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board.

If admission to candidacy is not filed at the time of completion of residence, then, after the fourth commencement, admission to candidacy will be approved once for a three-year period by vote of the Graduate Board.

Course and Examination Requirements: Each student must meet a minimum course requirement of 30 semester hours, and his program must be approved by chairman of the department. One of his courses, normally three to six semester hours, may be a research course devoted to the preparation of his thesis. Credit for a maximum of six semester hours of course work at another institution may be approved by the Graduate Board upon the recommendation of the department.

Each candidate must make a satisfactory record in such written examinations as may be required by the major department and in a final oral examination by a committee of three or more, (two of whom must be members of the Graduate Board.)

Thesis: The thesis is written on a topic in the field of the student's special interest under the supervision of a member of his major department. The ribbon copy of the thesis, a précis approved by the supervising instructor, and an academic history must be deposited in the Registrar's office not later than three weeks before the date of the commencement at which the degree is to be conferred. At least one additional copy of the thesis and the précis must be delivered to the major department which may require more than one copy. The précis may not exceed 75 words in length. The title page, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the thesis must be typed on prescribed paper, marginally ruled in red and obtainable at the University Bookstore. For directions concerning the format of the thesis, see "The Master's Thesis" issued by the Graduate School Office with its notification of admission to candidacy.

The thesis is deposited by the Registrar in the University Library. The précis is printed by the University in an annual publication, *Dissertations and Theses.*

Alternative Program: A candidate for the degree of Master of Arts may be recommended for the degree without a thesis when he has passed the preliminary doctoral examination.

Diploma Fee: This fee for the Master of Arts degree is 25.00. It covers the cost of the diploma, publication of the précis in the booklet *Dissertation and Theses* and binding of the library copy. It is payable when the thesis is deposited with the Registrar and replaces the fee formerly paid at the time of admission to candidacy. Students who do not write a thesis, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the Registrar's Office.

Non-Resident Students: Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of $12.50 per semester. This fee doubles on renewal of candidacy.

Master of Arts in Education

The residency, candidacy, course, examination, and diploma-publication fee requirements are the same as those listed for the degree of Master of Arts.

Thesis: Students may choose one of three options, subject to the approval of the Department of Education. They may choose to (1) prepare a thesis as required for the M.A. degree; or (2) elect two additional semester courses (six semester hours); or (3) elect a research-seminar, three semester hours, in which papers are prepared and presented to fellow students and staff.

Further information concerning the degree of Master of Arts in Education may be found in the catalog section, "Departments and Courses." listed under the Department of Education.

Students in this program must have two academic years of residency during which half-time is devoted to study and half-time to teaching. Candidacy, course, examinations, and diploma-publication fee requirements are the same as those listed for the degree of Master of Arts.

Professional Project: Students may choose one of two options, subject to the approval of the Department of Romance Languages: (1) prepare a thesis as required for the M.A. degree or other appropriate research report; (2) develop and evaluate a set of instructional materials.

Further information concerning the degree of Master of Arts in Teaching may be found in the catalog section, "Departments and Courses," listed under the Department of Romance Languages.

Master of Business Administration

This degree is offered through the Division of Business Administration. For further information, see the catalog section on the M. B. A. Program.

Doctor of Education

The program leading to the degree of Doctor of Education emphasizes human development and learning as it relates to curriculum, instruction, and evaluation and in the sociology of education. The requirements for this degree closely parallel those for the degree of Doctor of Philosophy (see below). See catalog section on Department of Education for further information.

Doctor of Philosophy

Only such candidates as give evidence of general proficiency, power of investigation and high attainments in the special fields in which their major subjects lie will be encouraged to proceed to the degree of Doctor of Philosophy.

Residence: The minimum requirement is one year of full-time study (not less than 24 semester hours beyond the M.A.), or its equivalent in part-time work, in residence which is broadly lefined as graduate work done at Clark University under the mmediate personal supervision of at least one member of the Jniversity faculty.

If the degree of Master of Arts has been earned at Clark, his requirement is an addition to the residence requirement or that degree.

Foreign Language: Each graduate department sets its own language or related requirements as the student's field of research may demand, and must report such requirements in each case to the Dean of the Graduate School. If a language is required either the Educational Testing Service Foreign Language Tests or on-campus testing are employed at the discretion of the department.

Preliminary Examination: Upon completion of preparation in his fields of study a prospective candidate takes a preliminary examination set by his major department. This examination may be written or oral, or a combination of both. The chairman of the department may invite non-members of the department from within or without the University to participate in the examination.

Candidacy: An application for admission to candidacy should be filed when the applicant has (1) completed two full academic years of graduate work, or its equivalent in part-time work, including one year at Clark University; (2) completed the departmental requirements in a foreign language. (3) passed a preliminary examination in his chosen field of study; (4) obtained the written endorsement of his major department.

Candidacy for the degree of Doctor of Philosophy is valid through the fourth commencement after admission to candidacy. For satisfactory reasons, candidacy may be extended once for an additional period of three years by vote of the Graduate Board. Should a period of four years elapse between completion of prerequisites to filing for candidacy and actual filing for candidacy, then, for satisfactory reasons, candidacy may be accepted once for a three-year period by vote of the Graduate Board.

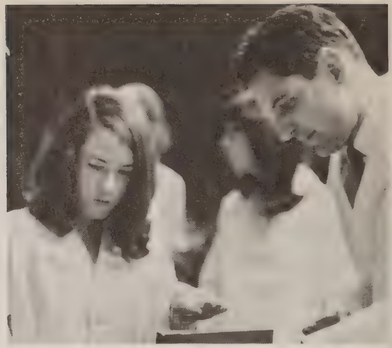
Dissertation: A dissertation which is expected to make an original contribution to some special field of knowledge is required of each candidate. The dissertation, approved by the chief instructor or dissertation committee, is laid before the examining committee at the final oral examination.

An abstract of the dissertation, not exceeding 600 words in length, and a précis, not exceeding 75 words, both approved by the instructor or committee under whom they were written, are also required.

Four weeks before the degree is to be conferred, the ribbon copy of the dissertation, together with two official title pages, an academic history, the ribbon copy of the abstract and of the précis, each in a form prescribed, must be delivered to the Registrar. At the same time, one or more copies of the dissertation and of the abstract may be required by the major department. The title pages, précis and academic history forms are obtainable from the Graduate School Office. The ribbon copy of the dissertation must be typed on prescribed paper, marginally ruled in red, obtainable at the University Bookstore. For directions concerning the format of the dissertation, see "The Doctoral Dissertation" and "Suggestions for the Preparation of Doctoral Dissertations for Microfilming" issued by the Graduate School Office with its notification of admission to candidacy.

The Registrar deposits the dissertation and the abstract in the University Library where they remain permanently. A microfilm copy of each dissertation is made by University Microfilms, Inc., of Ann Arbor, Mich., and is available for duplication by them on request. The abstract is printed in *Dissertation Abstracts;* the précis is printed by the University in an annual publication, *Dissertations and Theses.*

Final Examination: The final examination is oral and lasts for at least two hours. Additional written examinations may be given if the major department so directs. The candidate is expected to defend his dissertation and, at the discretion of the examining committee, may be questioned on the entire special



field of his study. The oral examination is conducted by a committee of at least four members, composed of the chairman of the department, at least one other member of the Graduate Board, and such members of the department and non-members from within or without the University as the chairman may appoint. The chairman notifies the Dean of the Graduate School, at least one week in advance, of the time and place of the examination and the composition of the committee. The Dean is authorized to invite any person from within or without the University to be present and to assist in the examination.

Diploma Fee: This fee for the Doctor of Philosophy degree is $85.00. It covers the cost of the diploma, hood, publication of the précis in the publication *Dissertation and Theses* and publication of the abstract in *Dissertation Abstracts* and binding of the library copy of the dissertation. It is payable when the dissertation is deposited with the Registrar and replaces the fee formerly paid at the time of admission to candidacy.

Non-Resident Students: Students who have been admitted to candidacy for the degree and are not *registered* students are required to pay the non-resident fee of $25.00 per semester. This fee doubles on renewal of candidacy.

Post-Doctoral Study

Post-doctoral students are classified in three categories: *Honorary Fellows* who are visitors for varying lengths of time, always more than a few days, who wish to observe activities of a department, to study, or to carry on research, but without formal teaching duties or support by the University; *Research Associates* who work full-time with designated members of the University staff on research projects, normally supported by grants, without formal teaching duties but with some responsibility for directing laboratory assistants; and *Trainees* who enroll in a formally offered post-doctoral training program.

The Honorary Fellow and Research Associates enjoy faculty status, although the extent to which faculty privileges may be granted may be restricted by availability of space and other resources.

Graduate Scholarships, Fellowships and Assistantships

Graduate fellowships and scholarships are provided for well-qualified graduate students by the University from endowed funds and from other sources. Financial aid to graduate students is available also in the form of grants from a number of special funds, and in some departments, from sponsored research grants. A limited amount of part-time employment is available in the various offices and departments of the University. Frequently, as in the case of departmental assistants, this employment yields useful experience.

Application: Application for a scholarship or fellowship to begin in September should be made before *February 20* to the chairman of the department in which the applicant expects to do his major work. Late applications are acted upon periodically. All applications, after endorsement by the department, go to the Graduate Board for final action.

Research Fellowships: These fellowships may be awarded to graduate students who have fulfilled their residence requirements and who are pursuing a full-time doctoral program.

Teaching Assistant Scholarships or Fellowships: These may be awarded to teaching assistants who are engaged in full-time activity on campus, of which approximately half-time is devoted to teaching duties and approximately half-time is devoted to graduate study.

TEACHING ASSISTANTSHIPS: In several departments, teaching assistantships, involving less than half-time, are available with stipends which vary according to the amount of service agreed upon.

Note that the departments of Biology, Chemistry, Economics, Geography, History, Mathematics, Physics, Psychology, Sociology, and the Romance Language program require teaching experience for graduate degrees. See the departmental announcements in the catalog section on "Departments and Courses.

Assistantships: In several departments, assistantships are available. They involve a variety of services including research with stipends to correspond, and usually provide the student with experience which will be useful in his later professional work.

Graduate Fellowship and Scholarship Funds: Stipends for graduate fellowships and scholarships are provided by:

THE ALUMNI ASSOCIATION FUND, provided by alumni who hold the degree of Doctor of Philosophy to benefit students studying for that degree.

THE GEORGE S. BARTON FUND, a bequest from the Honorable George S. Barton of Worcester, to be used for the benefit of native-born citizens of Worcester.

THE ELNORA W. CURTIS FUND, a bequest from Dr. Elnora W. Curtis, A.M. 1908, Ph.D., 1910, for the benefit of graduate students.

THE ELIZA D. DODGE FUND, to be granted to graduate students of limited means who are engaged in research work.

THE JOSEPH F. DONNELLY MEMORIAL FUND, a bequest from Lucretia F. Donnelly to help men who are enrolled in a course leading to the degree of Doctor of Philosophy.

THE JOHN WHITE FIELD FUND, established by Mrs. Eliza W. Field to provide for the minor needs of a scholar or fellow.

THE AUSTIN S. GARVER FUND, a bequest from Austin S. Garver, member of the Board of Trustees from 1908 to 1918.

GRADUATE SCHOOL SCHOLARSHIP FUND, a bequest from Alexander H. Bullock, a member of the Board of Trustees from 1926 to 1946 and president of the board from 1938 to 1946.

THE GEORGE FRISBIE HOAR FUND, the gift of Andrew Carnegie in honor of the second president of the University's Board of Trustees.

THE MYERS FUND, a gift of George E. Myers, Ph.D., '06, to assist graduate students to do research in education and psychology.

THE CHARLES H. THURBER FUND, provided by Charles H. Thurber, member of the Board of Trustees from 1913 to 1938 and president of the board from 1919 to 1937.

Graduate Loans

Loans, bearing interest at three percent per year after completion of residency, are available for graduate students from these funds:

THE MARY S. ROGERS SCHOLARSHIP AND LOAN FUND, established in 1926 for the benefit to students in the graduate school.

THE MARY M. THURBER FUND, established by the late Dr. Charles H. Thurber, former president of the University Board of Trustees, as a memorial to his mother.

For loans from these and other sources that may become available, application should be made at the Graduate School Office.

Departmental Funds

THE WALLACE W. ATWOOD RESEARCH FUND. The income of this fund may be used at the discretion of the staff in the Graduate School of Geography for the promotion of field studies in geography by any member of the staff, or any one of the alumni holding a graduate degree from the Graduate School of Geography, or for the publication of results of such research work.

THE CHESTER BLAND FUND. The income of this fund is preferably used to provide aid to a promising student, either in residence or engaged in research elsewhere under the direction of the Department of History. It may also be used to defray the expense of visiting lecturers or of departmental research.

THE WALLACE W. GREENWOOD FUND. The income only is to be divided between the Departments of Physics and Chemistry and to be used for any purpose within the scope of these two departments.

THE MORTON L. "SONNY" LAVINE FOUNDATION is a memorial to Lieutenant Lavine of the United States Army, World War II. The income is to be used for the promotion of research in the Department of History.

THE LIBBEY FUND, bequeathed to the University by Mary E. Libbey, is to establish a fellowship in physical geography and to aid the Department in that field.

Other Funds

In addition to the Clark departmental funds listed above, several departments participate in national fellowship or traineeship programs; including

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION traineeships in the sciences.

NATIONAL DEFENSE EDUCATION ACT, TITLE IV fellowships in chemistry, geography, history and psychology.

NATIONAL SCIENCE FOUNDATION traineeships in biology, chemistry, economics, geography, mathematics and psychology.

PUBLIC HEALTH SERVICE fellowships and traineeships in biology, chemistry and psychology.

United States Office of Education, EDUCATION PROFESSIONS DEVELOPMENT ACT fellowships in Geography and History. COMMITTEE ON GEOGRAPHY AND AFRO-AMERICA fellowships in Geography. HIGHER EDUCATION ACT, TITLE V-C fellowships: Prospective Teacher fellowships in Geography; Experienced Teacher fellowships in Geography and History.

UNITED STATES STEEL fellowship in economics.

For further information consult the chairman of departments or the Dean of the Graduate School.

Housing and Board

Off-campus rooms and apartments for both men and women are available in the immediate area of the University. For information concerning accommodations, write directly to the Office of Buildings and Grounds, which keeps a bulletin board of available off-campus rooms and apartments, or to the department concerned. Students should plan to arrive a few days before registration in order to arrange for housing because of the limited number of suitable off-campus apartments in the immediate area.

Graduate students are invited to take their board in the University dining halls at the cost of $600 for the academic year (20 meals per week except during vacations). They will also find the Snack Bar in Jefferson Hall available for single meals.

Infirmary and Insurance

A low-cost insurance plan covering ordinary medical expenses and limited maternity benefit for married students is available through the University. Unless a student is protected by similar insurance, he must enroll in this plan since all graduate students must be covered by Health and Accident Insurance. Students will be provided with information regarding this insurance during the summer.

Graduate students are entitled to use of the Infirmary for minor first-aid needs.

Graduate Tuition and Other Charges

Tuition and insurance charges are payable when the semester bill is received. Identification cards are provided each year of residence. A late registration fee is charged if registration is not completed by the end of the second week of the semester. Candidates who are not in residence must pay the non-resident fee until the requirements for the degree are fulfilled; non-payment will automatically terminate candidacy.

Schedule of Tuition and Other Charges

Tuition: (Full Program: 12 to 18 semester hours) $1,100.00 per semester

If less than a full program, the student will be charged according to the fraction of a program indicated by the Chairman of the department on the registration card.

Tuition for Special Graduate Students $91.66 per semester hour

Insurance:	Single Students	30.00
	Student and Spouse	130.00
	Family Plan	155.00

Diploma Fee: (payable at the time the thesis or dissertation is deposited with the Registrar) :

Students who do not write a thesis or dissertation, including those receiving the degree on the alternative program, must pay this fee no later than the date on which theses are due in the registrar's office.

Master's Degrees	25.00
Doctor of Philosophy and Doctor of Education	85.00

Non-Resident Candidate Fees: (payable on November 1 and March 1) . If the thesis or dissertation is deposited with the Registrar before either date, no fee is charged for the semester.

The fees double upon renewal of candidacy.

Master's Candidates	12.50 per semester
Doctoral Candidates	25.00 per semester

(For the Master of Business Administration tuition and fees, see the "Evening College Catalog.")

Refund

A student who withdraws during the first two weeks of any semester is allowed a refund of 80 per cent on tuition; during the third week, 60 per cent; during the fourth week, 40 per cent; after the fourth week there is no refund. There is no refund on other charges, except board, when a student withdraws from the University.

THE SUMMER SCHOOL

Summer Study

Intensive instruction in numerous fields of study is offered through two summer programs: a six-week summer session and a three-week intersession program. A variety of courses is offered for undergraduates, graduate students and teachers. A student may register for nine semester hours of credit each summer by attending the Intersession and the Summer Session. Evening courses are also available during the summer to all students to continue their education while engaged in day-time employment.

Degrees and Credit

All courses offered in the Summer Session or Intersession programs are accepted at Clark for credit toward bachelor's degrees unless they are specifically limited in the description of the course. Many courses count toward the degrees of Master of Arts, Master of Arts in Education and Doctor of Philosophy. However, approval for such courses should be obtained in advance from the student's major department.

Graduate students formally registered in the Summer School may, with the approval of their major department, enroll in thesis courses under the direction of regular members of the staff.

A student may carry in a normal program one course in the Intersession and two courses in the Summer Session. Permission to carry an additional course may be granted but only in exceptional cases and with approval in writing prior to registration.

Summer School Catalog

Detailed information concerning the Summer Session and Intersession are contained in a Summer School catalog which may be requested from the director of the Summer School.

THE EVENING DIVISION

The Evening College

General Information

The Evening College, established in 1953 as an institution devoted to adult learning, has three primary functions. With the conviction that education in our modern society must be a lifelong process, it provides university education for adults of all ages who seek further knowledge and personal development through selected studies in the broad areas of the liberal arts. Further, in recognition of the rapidly developing and changing needs of business and the professions, it provides courses designed to help working men and women improve their occupational skills and to prepare for positions of increased responsibility.

Secondly, the Evening College provides an opportunity for adults to earn the bachelor's degree, exclusively by evening study, through programs planned to meet the unique educational needs of the mature person. Formal programs are available leading to the degree of Bachelor of Science in either general studies or business administration and to the degree of Bachelor of Fine Arts. The Evening College also offers the Diploma in General Studies after completion of a short formal program in liberal education designed specifically for adults.

Finally, as a community service, the Evening College organizes frequent non-credit short courses, institutes and seminars,

which are tailored to the specific needs of various civic, professional and business groups.

Students may be enrolled for either individual courses or formal programs of study.

Individual Courses: Admission to individual courses in the Evening College is open to all interested adults seeking to further their education. High school graduation is not required but desirable. Continued attendance is contingent upon evidence of ability to profit from the instruction offered. Advanced courses for which prerequisite courses or experience are indicated are open only to persons who meet the stated requirements.

Admission

Admission To Formal Programs: Adults applying for a formal program of study in the Evening College will be required to submit records of their previous schooling prior to admission. Except under unusual circumstances applicants must possess a diploma from an accredited high school. Applicants for the Bachelor of Science degree or the Diploma in General Studies who have not attended college previously may arrange to have their high school records forwarded to the Evening College on forms supplied to them on request to the college. Adults who have attended other colleges should request that their transcripts be forwarded directly to the Evening College.

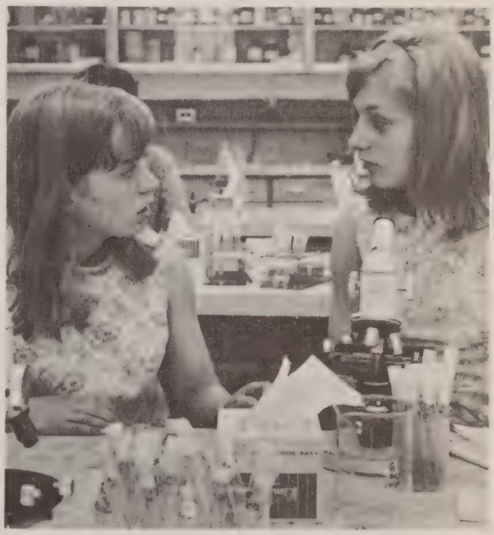
Evening College Catalog

Detailed information about the Evening College is contained in a special catalog which may be requested from the director of the Evening College.

Division of Business Administration

The Master of Business Administration degree is offered by the Division of Business Administration. Through carefully selected substantive materials and an analytical approach to the practice of management, the program is designed to enable college graduates to supplement job experience in preparing for positions of executive responsibility. The course of study emphasizes administrative decision making rather than details of initial positions in business.

The curriculum consists of 30 semester hours of credit. Details of the program and administration requirements may be obtained by writing to *Mr. George A. Balko, Chairman, Division of Business Administration.*



DEPARTMENTS AND COURSES

Departments and Courses

Department Courses

The course offerings of each department are listed in their numerical sequence. The announced courses are subject to modification and change.

Course Numbering System

Each course is indicated by number and title. A course number, unmodified by "a" or "b" indicates a year-course, one which continues through two semesters of an academic year. A course number followed by an "a" refers to a half-course usually offered in the first semester. A number followed by a "b" refers to a half-course usually offered in the second semester.

Two-semester courses are divisible unless an explicit statement of indivisibility appears in the course statement. Courses which are indivisible normally require the successful completion of the first semester as a prerequisite to entering the second semester, and students who register for an indivisible course must complete the second semester of the course before receiving credit for the first.

Course Sequence

Courses are arranged, in general, in sequence progressing from elementary to advanced courses.

Courses which are *opened to freshmen* are designated by the letter *"F"* before the course number.

Courses which are *primarily for undergraduates* are designated by numbers beginning with the numeral *1*.

Courses for *advanced undergraduates and graduate students* are designated by numbers beginning with the numeral *2*.

Courses which are *primarily for graduate students* are designated by numbers beginning with the numeral *3*.

Anthropology

UNDERGRADUATE PROGRAM

Courses in anthropology and related subjects are offered in several departments at Clark. Students interested in this field may major in one of these departments and register for courses in anthropology under programs of study planned in consultation with their departmental advisors. Although a major in anthropology as such is not offered, the undergraduate courses available at Clark provide an adequate background for graduate study. A list of such courses is given below. A full description of each course will be found in the section of this catalog devoted to the department under which the course is offered.

Sociology F12a (Geography F12a).	SOCIAL ANTHROPOLOGY.	Mr. Gerber.
Biology 12a.	COMPARATIVE ANATOMY.	Mr. Nunnemacher.
Geography 17b.	INTRODUCTION TO CULTURAL GEOGRAPHY.	Mr. Blaut.
Geography 269b.	ETHNO-GEOGRAPHY.	Mr. Blaut.
Geography 272a.	RELATIONS OF CULTURE AND ENVIRONMENT.	Mr. Bowden.
Geography 273b.	SETTLEMENT GEOGRAPHY.	Mr. Bowden.
History 14a.	HISTORY OF ASIA TO 1800.	Mr. Barrow.
Linguistics 115.	MAN AND LANGUAGE.*	Mr. Reid.
Sociology 36.	READINGS IN SOCIAL ANTHROPOLOGY.	
Sociology 290a.	CLASSIC SOCIOLOGICAL THEORY.	Mr. Montano
Sociology 290b.	CONTEMPORARY SOCIOLOGICAL THEORY.	Mr. Hewitt

*Not offered, 1969-70.

Biology

DEPARTMENT FACULTY

Rudolph F. Nunnemacher, Ph.D., *Professor of Zoology, Department Chairman*
Vernon Ahmadjian, Ph.D., *Professor of Botany*
John J. Brink, Ph.D., *Associate Professor of Biochemistry*
George Camougis, Ph.D., *Professor of Physiology, (part time)*
Joseph C. Curtis, Ph.D., *Associate Professor of Zoology*
John T. Reynolds, Ph.D., *Associate Professor of Microbiology*
Behrus Jahan-Parvar, M.D., *Assistant Professor of Physiology*
H. William Johansen, Ph.D., *Assistant Professor of Botany*
Helen G. Vassallo, Ph.D., *Assistant Professor of Physiology (part time)*
Warren Litsky, Ph.D., *Professor (Affiliate) of Microbiology*
Harris Rosenkrantz, Ph.D., *Professor (Affiliate) of Biochemistry*
Ian D. K. Halkerston, Ph.D., *Associate Professor (Affiliate) of Endocrinology*
Harry L. Jacobs, Ph.D., *Associate Professor (Affiliate) of Physiology*
Fernand G. Peron, Ph.D., *Associate Professor (Affiliate) of Biochemistry; Director of Steroid Training Program*
Linda Bartoshuk, Ph.D., *Assistant Professor (Affiliate) of Physiology*

UNDERGRADUATE PROGRAM

A departmental major must take Biology 8 and one of the following courses: Biology 9, Biology 10, Biology 11. In addition, the major must include three advanced courses in biology, Chemistry 11, Physics 11, Mathematics 12 and at least one additional course in chemistry, physics, or geology. Mathematics 12 does not count toward the fulfillment of the major requirements.*

At least 36 semester hours of a major's program must be taken from courses outside the field of biology, chemistry, geology, mathematics, physics, and psychology 160, 222, 328.

HONORS PROGRAM

An Honors Program is available to especially well qualified majors and encourages the student to engage in an independent research project during the senior year. Frequently the Honors Project is the continuation of research begun during the summer under the National Science Foundation Undergraduate Research Participation Program.

GRADUATE PROGRAM

The department offers courses leading to Master of Arts and Doctor of Philosophy degrees in specialized phases of bacteriology, biochemistry, botany, cytology, physiology and zoology. Admission to the graduate program assumes adequate preparation in the basic sciences, an overall undergraduate record of B or better, and satisfactory standing in the Graduate Record Examination. Tuition scholarships and Teaching Assistantships are available. Detailed information can be obtained from the department chairman.

Master of Arts: The program usually requires three or four semesters of academic work and includes teaching experience and research culminating in an acceptable thesis.

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*None of the above mentioned courses may be taken on the "pass-no record" option.

Doctor of Philosophy: The requirements are identical with those of the University and can be found in the catalog section on The Graduate School and includes teaching experience. The student's program is planned according to his needs with his program director.

TRAINING PROGRAM FOR STEROID BIOCHEMISTRY

A Training Program for Steroid Biochemistry has been established at the University through the cooperation of the Department of Biology and the Worcester Foundation for Experimental Biology with the support of the National Cancer Institute and the U.S. Public Health Service. Post-doctoral fellowships are available for persons possessing the Ph.D., M.D., or equivalent training. Further information may be obtained from the *Program Director, Dr. Fernand G. Peron.*

NEUROLOGICAL SCIENCES TRAINING PROGRAM

This program is supported by the U. S. Public Health Service and carries fellowships at both the pre- and post-doctoral level. Training is offered in Neurophysiology, Neuroanatomy and related areas. For further information contact the *Program Director, Dr. R. F. Nunnemacher.*

COURSES

F8a. INTRODUCTION TO THE BIOLOGICAL SCIENCES.

The course provides a common basis to non-majors and prospective majors without advanced preparation in biology for all further course work in the department. It is concerned with the major generalizations of biology, with emphasis on cellular and molecular mechanisms. The laboratory sequence introduces some of the methodology that permits the student to participate in a scientific endeavor and emphasizes the analysis and interpretation of data. Three lectures and one laboratory period per week.

Four semesters hours. Mr. Reynolds.

F9b. MICROBIOLOGY.

A survey of microorganisms, their activities and the methods by which they are studied. Prerequisite: Biology F8a or its equivalent. Three lectures and one laboratory period per week.

Four semester hours. Mr. Reynolds.

F10b. BOTANY.

A survey of the taxonomy, structure, and physiology of plants. Prerequisite: Biology F8a or its equivalent. Three lectures and one laboratory period per week.

Four semester hours. Mr. Johansen.

F11b. ZOOLOGY.

A survey treating the evolution of the major animal phyla with emphasis on structural and functional adaptations, and principles of ecology. Prerequisite: Biology F8a or its equivalent. Three lectures and one laboratory period per week.

Four semester hours. Mr. Nunnemacher.

12a. COMPARATIVE ANATOMY.

A comparative study of the morphology of the vertebrates with emphasis on the evolution of animals from fish to man. Prerequisite: Biology F11b. Two lectures and two laboratory periods per week.

Four semester hours. Mr. Nunnemacher.

14a. CRYPTOGAMIC BOTANY. Not offered 1969-70.

The biology of algae, fungi, and mosses. Representative examples of the major groups are studied with emphasis on their structure, interrelationships and adaptation to their environment. Prerequisite: Biology F10b or consent of instructor. Three lectures and one laboratory period per week.

Four semester hours. Mr. Johansen.

15b. SYSTEMATIC BOTANY.

Taxonomy and classification of flowering plants, with emphasis on New England flora. A collection of 100 plants is required as well as a two-day spring collecting trip to the Berkshires. Three lectures and one laboratory period per week.

Four semester hours. Mr. Ahmadjian.

17. GENERAL ECOLOGY.

Introductory study of the distribution of plants and animals, their inter-relationships and adaptations to a wide variety of environments such as seashore, sand dunes, woodlands and ponds. Field trips to Mt. Monadnock and other areas of ecological interest will be taken during laboratory periods or on Saturday. Three lectures and one laboratory period per week. Usually offered during the summer.

Four semester hours. Mr. Hutchinson.

18a. GENETICS.

Principles and problems of genetics.

Three semester hours. Mr. McSweeney.

100b. ANIMAL PHYSIOLOGY. Not offered 1969-70.

This course integrated structure-function relationships in animal organ systems with particular emphasis on mammalian systems. The laboratory demonstrates the differentiating characteristics of the tissues and organs making up the respective systems. Prerequisite: Biology F11b. Three lectures and one laboratory period per week.

Four semester hours. Mrs. Vassallo.

114a. PHYCOLOGY.

The structure, function and interrelationships of fresh-water and marine algae will be studied with a view to understanding their role in the biosphere. Prerequisite: A course in botany or consent of the instructor. Three lectures and one laboratory period per week.

Four semester hours. Mr. Johansen.

120b. HISTOLOGY. Not offered 1969-70.

The microscopic anatomy of tissues and organs of mammals. Prerequisite: Biology 12a. Two lectures and two laboratory periods per week.

Four semester hours. Mr. Nunnemacher.

137b. CELLULAR BIOLOGY.

The cell as a structural and functional unit. Introduction to the physiochemical properties and metabolic roles of molecules and macromolecules of cellular origin. Discussion of the roles of the nucleus and cytoplasm in the regulation of cellular processes. Three lectures per week. Prerequisite: Biology F8a or equivalent.

Three semester hours. Mr. Curtis.

215a. INVERTEBRATE ZOOLOGY. Not offered, 1969-70.

221b. EMBRYOLOGY.

Consideration of the fundamentals of vertebrate embryology. Two lectures and two laboratory periods per week.

Four semester hours. Mr. Nunnemacher.

224a. NEUROANATOMY. Not offered 1969-70.

The structural and functional organization of the central nervous system of man. Prerequisite: Biology 12a or consent of instructor. Three lectures per week.

Three semester hours. Mr. Jahan-Parvar.

225a. ELECTRON MICROSCOPY.

Introduction to the principles of electron optics, use of the electron microscope, preparation of specimens and the techniques of electron microscopy applicable to biological investigations. Two lectures and two laboratory periods per week. Prerequisites: permission of the instructor.

Four semester hours. Mr. Curtis.

231b. BACTERIAL PHYSIOLOGY. Not offered, 1969-70.

Lecture topics and laboratory exercises selected to demonstrate chemical and physical principles underlying bacterial activities. Two lectures and two laboratory periods per week. Prerequisites: Biology 232a and consent of the instructor. Biology 240a is recommended.

Four semester hours. Mr. Reynolds.

232a. BACTERIOLOGY.

The biology of the bacteria and certain related forms with emphasis on their ecological role. Prerequisites: Biology F9, Chemistry 13, and consent of instructor. Two lectures and two laboratory/discussion periods per week.

Four semester hours. Mr. Reynolds.

240a. GENERAL PHYSIOLOGY.

Introduction to the physical and chemical phenomena underlying the functions common to living organisms. Two lectures and two laboratory periods per week. Prerequisites: Biology 137b, Chemistry 11 and Physics 11.

Four semester hours. Mrs. Vassallo.

241a. ENDOCRINOLOGY. Not offered, 1969-70.

General principles of vertebrate endocrinology.

Three semester hours. Mr. Halkerston.

242a. COMPARATIVE ANIMAL PHYSIOLOGY. Not offered, 1969-70.

247a, b. SEMINAR IN NEUROPHYSIOLOGY I, II.

A seminar on the principles of transmission, integration and storage of information in neuronal pathways and other considerations of the nervous system. Prerequisite: A course in Neurophysiology or its equivalent or consent of the instructor.

Three semester hours. Mr. Jahan-Parvar.

248b. SENSORY PHYSIOLOGY. Not offered, 1969-70.

A seminar on the principles of organization and function of invertebrate and vertebrate sensory receptors. Prerequisite: Biology 240a.

Three semester hours.

249b. NEUROPHYSIOLOGY.

Physiology of central and peripheral nervous systems, receptors and muscles, considered in both vertebrates and invertebrates. Three lectures and one laboratory period per week. Prerequisite: Biology 240a, or consent of the instructor.

Four semester hours. Mr. Jahan-Parvar.

257b. BIOPHYSICS. Not offered 1969-70.

Consideration of the physical properties of biological system. Influence of various physical agents upon biological structure and function. Physical methods of analysis of biological macromolecules. Three lectures per week. Prerequisite: consent of the instructor.

Three semester hours. Mr. Curtis

260a, b. SPECIAL PROBLEMS.

Advanced semi-independent study of an approved topic under the direction of a departmental member. Consent of instructor required. Required for honors in biology.

Three or four semester hours. Staff.

268b. PRINCIPLES OF PHARMACOLOGY.

This course is intended to acquaint the student or research worker with established principles and the more important phenomena involved in the study of pharmacology. Particular emphasis is placed on the quantitative aspects of the interaction of chemical compounds or drugs with biological systems. The principal pharmacological actions of several important drugs are illustrated.

Three semester hours. Mr. Camougis.

270. BIOCHEMISTRY.

The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, nucleic acids and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Prerequisite: Chemistry 13. Three lectures, one laboratory per week.

Four semester hours each semester. Mr. Brink.

272a. METABOLIC PATHWAYS IN BIOCHEMISTRY. Not offered, 1969-70.

The course is concerned with a discussion of the biosynthetic pathways of essential biological materials i.e. amino acids, lipids, vitamins and minerals in those living systems, plant and animal, capable of producing them. In addition their biochemical importance in mammals will be stressed. Prerequisite: Biology 270.

Three semester hours. Mr. Rosenkrantz.

273b. SEMINAR IN NEUROCHEMISTRY.

The metabolic aspects of brain amines and biopolymers will be considered in relation to neural function. Effects of drugs on memory processes will be discussed in terms of biochemical mechanisms. Prerequisite: Biochemistry 270 or consent of instructor.

Three semester hours. Mr. Brink.

300. READINGS AND RESEARCH IN BIOLOGY.
Three to four semester hours. Staff.

325a. SEMINAR IN ULTRASTRUCTURE.
Discussion of the structure of macromolecules and subcellular organelles in relation to their biological functions. Evidence obtained by a variety of physical and chemical methods will be considered, particular emphasis being placed on electron microscopic studies. Consent of instructor required.
Three semester hours. Mr. Curtis.

332b. SEMINAR IN BACTERIOLOGY.
Selected topics in bacterial ecology and physiology. Consent of instructor required.
Three semester hours. Mr. Reynolds.

341a. SEMINAR IN ENDOCRINOLOGY. Not offered, 1969-70.
Three semester hours. Mr. Curtis.

350. GRADUATE SEMINAR. Staff.

355a. PROBLEMS IN BEHAVIORAL PHYSIOLOGY.
Topics will be chosen in which interdisciplinary substantive material and methods from neuro-physiology, endocrinology, nutrition, sensory and regulatory physiology, and psychology (learning, modification, and sensation and perception) will be applied to simple behavioral systems in the whole organism. Prerequisite: Biology 240a.
Three semester hours. Mr. Jacobs, Miss Bartoshuk.

360. MASTER'S THESIS. Staff.

390. DOCTORAL DISSERTATION. Staff.

Biomedical Engineering

The Program in Biomedical Engineering is a graduate program under the joint sponsorship of Clark University and Worcester Polytechnic Institute. The aim of the program is to combine the resources of the two institutions to provide special education in this rapidly developing interdisciplinary area. Students entering the program must have a bachelor's degree in mathematics or one of the basic or engineering sciences. The master's program will include a minimum of five full courses taken at both institutions. All students will be expected to achieve some basic knowledge in biology, chemistry, engineering, mathematics and physics. Since a thesis on research is also required, the program will normally require at least two years of study. In general, the requirements for the degree will be consistent with the requirements for a master's or doctoral degree at both institutions. The detailed requirements for each student will be worked out by a Committee on Biomedical Engineering made up of faculty members from both institutions. Students enrolled at Clark will receive an M.A. or Ph.D. in Biology, the actual degree noting the cooperation of W.P.I. Conversely, students enrolled in the first instance at W.P.I. will receive the M.S. or Ph.D. in Biomedical Engineering, with the cooperation of Clark indicated on the degree.

For further information, write to: The Director, Biomedical Engineering Program, Clark University, Worcester, Massachusetts 01610.

Chemistry

DEPARTMENT FACULTY

Harry C. Allen, Jr., Ph.D., *Professor of Chemistry, Department Chairman*
Daeg S. Brenner, Ph.D., *Associate Professor of Chemistry*
Karen L. Erickson, Ph.D., *Associate Professor of Chemistry*
Edward N. Trachtenberg, *Ph.D., Associate Professor of Chemistry*
Wen-Yang Wen, Ph.D., *Associate Professor of Chemistry*
Allan M. Zwickel, Ph.D., *Associate Professor of Chemistry**
Paul T. Inglefield, Ph.D., *Assistant Professor of Chemistry*
Robert I. Morse, Ph.D., *Assistant Professor of Chemistry*

*On leave of absence, first semester, 1969-70.

UNDERGRADUATE PROGRAM

In offering a variety of introductory courses in the major branches of modern chemistry, the department seeks to satisfy the needs and desires of (1) those interested in pursuing a career in chemistry, (2) those in related science areas, the proper understanding of which requires a background in chemistry, and (3) the non-scientists who want some knowledge of chemistry as part of their liberal education. In addition to these courses, a large number of more specialized subjects are treated in advanced courses.

The rquirements for a major are Chemistry 13, 113b, 14a, 180a, 190b, 200a; Physics 11b or 12b and Mathematics 12; and four one-semester elective courses of which one must be in chemistry and the other three in mathematics beyond Mathematics 12, in physics beyond Physics 11 or 12 or in biology. In addition, all students must satisfactorily complete 36 semester hours outside courses in Group A and courses in statistics offered by any department.

Majors are urged to take Physics 130a, additional courses in mathematics and at least two years of German. Those who intend to do graduate work in chemistry are further advised to acquire a reading knowledge of either French or Russian.

An entering student with a sound background in chemistry is encouraged to take a placement examination given at the beginning of the academic year. Satisfactory performance on this examination can satisfy the Chemistry 11 prerequisite for Chemistry 13. This will permit completion of the requirements for the major no later than the junior and in some cases the sophomore year, leaving the student's senior year open for more sophisticated pursuits, such as the honors program.

GRADUATE PROGRAM

The department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy with specialization in various fields of chemistry and in chemical physics. Entering students must take placement examinations in the basic areas of undergraduate instruction: these examinations are used solely for the purpose of arriving at a satisfactory program of courses. Up to one year's equivalent of teaching apprenticeship will be required of all candidates for advanced degrees.

The requirements for the Master's degree are essentially those of the University. The course requirements for the Ph.D. are as follows:

1. All students must demonstrate satisfactory performance (B— or better) in Chemistry 230a, 323a, 340b and 379b. Students specializing in organic chemistry may substitute 200a for 340b.

2. All students must demonstrate satisfactory performance (B— or better) in at least two of the following courses: Chemistry 212b, 242b, 280b, 322b, 333a, 335b, 361a, and 369b.

3. Additional courses may be required by the student's research supervisor.

Qualifying and preliminary examinations must be passed, and the Department language requirement must be met. For further details on formal requirements consult the appropriate departmental publications.

Graduate scholarships teaching assistantships, research fellowships, NDEA fellowships and NSF traineeships are available. Further information on these awards may be obtained from the department chairman.

COURSES

F11. GENERAL CHEMISTRY.

Systematic study of the elements and their principal compounds and the fundamental laws and theories of chemistry. Three lectures and three laboratory hours per week. Divisible with consent of the instructor.

Four semester hours each semester. Mr. Allen.

13. ORGANIC CHEMISTRY.

Lectures on the principles of organic chemistry and a laboratory study of the preparation and properties of important organic compounds. Three lectures and four laboratory hours per week. Laboratory fee. Prerequisite: a grade of C— or better in Chemistry 11.

Four semester hours each semester. Mr. Trachtenberg, Miss Erickson.

14a. ANALYTICAL CHEMISTRY.

Theoretical principles and technical methods employed in determining the composition of matter. Two lectures and six laboratory hours per week throughout the semester. Prerequisite: Chemistry 11.

Four semester hours. Mr. Wen.

113a. QUALITATIVE ORGANIC ANALYSIS. Not offered, 1969-70.

Laboratory study of the identification of organic compounds by both classical and modern instrumental techniques. Prerequisites: Chemistry 13 or consent of the instructor. One hour conference and 7 hours of laboratory per week. Required for Chemistry Majors.

Three semester hours. Miss Erickson.

180a. PHYSICAL CHEMISTRY I.

Principles of physical chemistry applied to gases, liquids and solids; chemical thermodynamics; solution chemistry. Three lectures and three laboratory hours per week. Prerequisites: Physics 11b or 12b, Mathematics 12, a grade of C or better in Chemistry 11 or 13 or permission of instructor; Chemistry 13 and 14a may be taken concurrently. Additional course work in mathematics is recommended.

Four semester hours each semester. Mr. Inglefield, Mr. Morse.

190b. PHYSICAL CHEMISTRY II.

Electrode processes, chemical kinetics and atomic and molecular spectroscopy. Prerequisite: Chemistry 180a. Three lectures and three laboratory hours per week.

Four semester hours. Mr. Inglefield, Mr. Morse.

200a. PHYSICAL CHEMISTRY III.

Elementary quantum-mechanical treatment of the structure of nuclei, atoms and molecules. Three lectures per week. Prerequisite: consent of the instructor.

Three semester hours. Mr. Brenner.

212b. INORGANIC CHEMISTRY.

Theoretical and descriptive inorganic chemistry. Prerequisite: consent of the instructor.

Three semester hours. Mr. Zwickel.

214. SPECIAL PROJECTS.

Individual work of an investigative nature which may include a search of chemical literature as well as laboratory work.

Three semester hours each semester. Staff.

215. HONORS COURSE.

Primarily for majors seeking departmental honors in chemistry. A laboratory research project.

Three semester hours each semester. Staff.

230a. PHYSICAL ORGANIC CHEMISTRY.

Fundamentals of organic chemistry. Molecular structure, acidity and basicity, kinetics and mechanisms with emphasis on the most recent advances in organic chemical theory. Prerequisites: Chemistry 13, 180a, 190b or consent of the instructor.

Three semester hours. Mr. Trachtenberg.

242b. NUCLEAR AND RADIOCHEMISTRY.

Fundamentals of nuclear science: production, isolation, identification and measurement of radioactive atoms. Prerequisite: consent of the instructor.

Three semester hours. Mr. Brenner.

280b. INSTRUMENTAL METHODS. Not offered, 1969-70.

The principles and application of modern instrumental techniques to the separation and analysis of mixtures and for the characterization of pure compounds. Two lectures and six laboratory hours per week. Prerequisite: consent of the instructor.

Four semester hours. Mr. Brenner.

300. RESEARCH.

Three to fifteen semester hours each semester. Staff.

322b. THERMODYNAMICS.

Applications of classical thermodynamics to chemical systems.

Three semester hours. Mr. Morse.

323a. STATISTICAL MECHANICS.

Statistical mechanical analogs of thermodynamic functions and their application to chemical systems. Prerequisite: consent of the instructor.

Three semester hours. Mr. Wen.

331b. ADVANCED PHYSICAL ORGANIC CHEMISTRY. Not offered, 1969-70.

Modern interpretation of organic reaction mechanisms including molecular rearrangements, chain reactions and other reactions not covered in Chemistry 230a. Prerequisite: Chemistry 230a. Offered in alternate years.

Three semester hours. Mr. Trachtenberg.

333a. SYNTHETIC ORGANIC CHEMISTRY.

Lectures on synthesis of organic molecules emphasizing scope and limitations of general methods, mechanism and stereochemistry. Synthesis of carbon to carbon bonds, oxidation and reduction. Prerequisite: Chemistry 230a, or consent of the instructor. Offered in alternate years.

Three semester hours. Miss Erickson.

335b. NATURAL PRODUCTS. Not offered, 1969-70.

The chemistry of selected naturally occurring compounds. Structure determination, synthesis, mechanistic interpretation of exotic transformations, and biogenetic theory. Prerequisite: consent of the instructor.

Three semester hours. Miss Erickson.

340b. QUANTUM CHEMISTRY.

Elementary quantum mechanics of simple systems, properties of wave functions, approximation methods for complex systems.

Three semester hours. Mr. Morse.

341a. ADVANCED QUANTUM CHEMISTRY.

Approximation methods, atomic states, spectroscopy and molecular methods. Prerequisite: Chemistry 340b or consent of the instructor.

Three semester hours. Mr. Morse.

344a. SELECTED TOPICS IN ADVANCED NUCLEAR CHEMISTRY.

Discussion of current experimental and theoretical literature in nuclear reactions, fission, and nuclear spectroscopy. Prerequisite: Chemistry 242b or equivalent.

Three semester hours. Mr. Brenner.

350. SEMINAR.

Reports on research work and discussions of recently published work. No credit.

Guest Lecturers, Staff and Graduate Students.

360b. COORDINATION COMPOUNDS.

Chemical and physical properties of complexes, including theories of coordination, stereoisomerism, reaction mechanisms and solution stabilities. Offered in alternate years.

Three semester hours. Mr. Zwickel.

361a. MOLECULAR STRUCTURE. **Not offered, 1969-70.**
Physical methods relevant to the determination of the structure of molecules (x-rays, electron diffraction, nuclear magnetic resonance, electronic properties, etc.). Prerequisite: consent of the instructor. Offered in alternate years.
Three semester hours. Mr. Inglefield.

369a. ELECTRONIC SPECTROSCOPY. **Not offered, 1969-70.**
Introduction to the studies of ultraviolet and visible absorption spectra as well as emission spectra. Prerequisite: consent of the instructor. Offered in alternate years.
Three semester hours. Mr. Wen.

379b. SPECIAL TOPICS.
Research seminars; reports by graduate students.
Three semester hours. Staff.

380. RESEARCH CONFERENCE.
Informal reports of research work being done in the laboratory. No credit.
Staff and Graduate Students.

Classics

DEPARTMENT FACULTY

Claude W. Barlow, Ph.D., *Professor of Classics*
Joseph E. Sheerin, Ph.D., *Visiting Professor of Classics*

UNDERGRADUATE PROGRAM

Undergraduate courses are provided for the acquisition of a reading knowledge of Greek and Latin and for the study of literary masterpieces in those original languages. Courses also are offered for the candidate who wishes to major in Latin. The major should include Latin 13 during the freshman year, three advanced Latin courses and three courses in related fields to be approved by the department. In addition, at least 36 semester hours of a major's program must be taken from other than Group C and Group D courses. Other courses, given entirely in English, deal with phases of the Greek and Roman civilizations. Students who wish to elect Elementary Greek or Intermediate Latin should consult the department as far in advance as possible since these courses are not offered every year.

Clark students may also take for credit appropriate courses in Greek or Latin offered by the College of the Holy Cross and Assumption College.

COURSES

Greek

F11. ELEMENTARY GREEK. **Not offered, 1969-70.**
Greek grammar through forms, syntax, vocabulary and reading; selections from Xenophon's *Anabasis* or other simple prose. Open to freshmen. Indivisible course.
Three semester hours each semester.

12. ATTIC GREEK PROSE: HOMER'S *Iliad.*
Prerequisite: Greek 11.
Three semester hours each semester. Mr. Barlow.

13. GREEK DRAMA. Not offered, 1969-70.
Prerequisite: Greek 12 or the equivalent.
Three semester hours each semester.

F123a. GREEK CIVILIZATION.
Lectures, readings and discussion on the history, literature, art, religion and government of ancient Greece, with emphasis on the elements which have contributed most to Western civilization. Given in English.
Three semester hours. Mr. Barlow, Mr. Sheerin.

Latin

F11. ELEMENTARY LATIN. Not offered, 1969-70.
Three semester hours each semester.

F12. INTERMEDIATE LATIN: VIRGIL's *Aeneid.* Not offered, 1969-70.
This course will begin with an intensive review of forms, syntax and vocabulary for at least seven weeks. Prerequisite: two years of secondary school Latin. Offered in alternate years.
Three semester hours each semester.

F13. CATULLUS AND PLAUTUS: TERENCE AND HORACE.
Prerequisite: Latin 12 or three years of secondary school Latin.
Three semester hours each semester. Mr. Barlow.

15. ROMAN PHILOSOPHERS; SILVER AGE LATIN. Not offered, 1969-70.
Prerequisite: Latin 13.
Three semester hours each semester.

17. POETS OF THE AGUSTUN AGE; ROMAN HISTORIANS.
Three semester hours each semester. Mr. Barlow.

19. SURVEY OF LATIN LITERATURE. Not offered, 1969-70.
Three semester hours each semester.

88. SPECIAL STUDIES.
Three semester hours. Mr. Barlow.

F123b. ROMAN CIVILIZATION.
Lectures, readings and discussion on the history, literature, philosophy, art, religion, law and government of ancient Rome, with emphasis on the transmission of Greek civilization and the condition of the Roman Empire during the early years of Christianity. Given in English.
Three semester hours. Mr. Barlow, Mr. Sheerin.

Comparative Literature

18. LITERATURE AND THE NATURE OF MAN.

The course is designed to serve the general student by providing him with an opportunity to investigate ideas held by outstanding literary artists of the Western World concerning the nature of man and his relation to the universe. The works are also to be studied as representative of the cultures of which they are products. The course is planned not only to introduce the student to a body of knowledge and experience held in common by educated men and women in our society but also to help him to clarify his thinking concerning certain basic problems and to develop attitudes that are both humane and creative. The subject matter undertaken includes Sophocles' *Oedipus the King,* the *Book of Job,* the *Inferno* from Dante's *Divine Comedy,* Shakespeare's *King Lear,* Milton's *Paradise Lost,* Moliere's *Misanthrope,* Goethe's *Faust,* Part I, and selected poems of T. S. Eliot. All non-English works are read in translation. Classified as Group C course. Open to sophomores, juniors and seniors with the consent of the instructors. Successful completion of the first semester is normally required for admission to the second semester.

Three semester hours each semester. Mr. King, Mr. Anderson.

COMP. LIT. 19a. SURVEY OF THE HEBREW SCRIPTURES — PENTATEUCHAL AND HISTORICAL BOOKS.

COMP. LIT. 20a. SURVEY OF THE HEBREW SCRIPTURES PROPHETIC AND WISDOM LITERATURE.

An analysis of the relevant texts in terms of their historical, social and religious background and their role in shaping the thinking of the Biblical Age. *Comp. Lit. 19a is a prerequisite for Comp. Lit. 20a.*

Three semester hours each course. Rabbi Klein

ENGLISH 150a. LITERATURE OF WESTERN CIVILIZATION. Not offered, 1969-70.

See description under English.

ENGLISH 245b. SEMINAR: MODERN CONTINENTAL FICTION.

See description under English.

GERMAN 197b. THE FAUST THEME IN LITERATURE.

See description under German. Mr. Arndt.

GERMAN 199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.

See description under German. Mr. Arndt.

RUSSIAN 179. SURVEY OF RUSSIAN LITERATURE.

See description under Russian. Mrs. Sorokin.

RUSSIAN 180. SOVIET LITERATURE. Offered in Clark Evening College.

See description under Russian. Mrs. Sorokin.

Computer Science

The courses in the area of Computer Science listed below are available to Clark students. They involve the use of the 1620 on campus and the use of the RCA 70-46 currently housed on the Worcester Tech campus. For fuller description of these courses see department listings elsewhere in this catalog or the Worcester Tech catalog.

Many fields will accept 12 semester hours as a related field and in particular the departments of Economics and Physics have expressed an interest in a joint major. For further details consult the Computer Center staff and major advisors.

INTRODUCTORY COURSES

COMP. 100a. COMPUTER APPRECIATION.

The topics of computer software, hardware and applications are covered. Included will be a treatment of computer information systems, computer graphics and computer model building techniques. The course is designed to introduce the student to the capabilities and limitations of modern computing systems. This is not a programming course. Freshmen may enroll.

Three semester hours. Mr. Howard.

BAE 145. ELECTRONIC DATA PROCESSING (Clark Evening College).

MATH 130a. INTRODUCTION TO COMPUTING.

This first course in computing concentrates on the solution of computational problems through the use of an algorithmic language. FORTRAN is primarily used in order to develop the ability to attack substantial problems. Designed for students majoring in Mathematics or the Physical Sciences.

Three semester hours. Mr. Chan.

GEO 248b. MODEL BUILDING TECHNIQUES.

The systems analysis approach to problem formulation and linear programming techniques are presented. Individual projects are required.

Three semester hours. Mr. Howard.

GEO 249a. FORTRAN IV PROGRAMMING FOR GEOGRAPHY.

Designed for students with no mathematics beyond high school algebra. Emphasis on numeric applications.

Four semester hours. Mr. Howard.

COMP. 101b. PL/1 AND BASIC PROGRAMMING.

The fundamentals of PL/1 and basic programming languages are presented. Emphasis is placed on alphabetic manipulations. Applications include information storage and retrieval, content analysis and text manipulations. The course is designed for non-numeric users and is suggested for humanists. Freshmen may enroll.

Three semester hours. Mr. Howard.

C 505. THE SOCIAL IMPACT OF THE COMPUTER (Worcester Tech)

MATH 212a. NUMERICAL ANALYSIS.

Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.

Four semester hours. Mr. Stubbe.

ADVANCED COURSES.

CS 502. ADVANCED SYSTEMS PROGRAMMING (Worcester Tech).

CS 503. SYSTEMS SIMILATION AND OPTIMIZATION (Worcester Tech).

MATH 235b. COMPUTATIONAL LINGUISTICS.

An introduction to computational linguistics, processing of natural language data on the digital computer; properties of programming languages; Turing machines, computability, finite state languages, theory of automata, context free and context-sensitive languages, phrase structure grammars; theories of natural language analysis; transformational grammar; automatic analysis of syntax and phonology; machine translation and related problems in information retrieval.

Three semester hours. Mr. Chan.

CS 513. MATHEMATICAL PROGRAMMING (Worcester Tech).

Natural Science students interested in Computer Science should take MATH 130, MATH 212, and may take COMP 100a, GEO 248b, COMP 101b, CS 505, CS 513.

Social Science and Humanities students interested in Computer Science should take COMP 100a and COMP 101b and may take GEO 249a, MATH 235, and CS 505.

Students interested in a career in the computer field should take MATH 130a, COMP 101b, COMP 100a, MATH 212, CS 503, CS 502 and MATH 235 and may take GEO 248b, CS 505, CS 513.

Students interested in Business Data Processing should take BAE 145 in the Clark University Evening College and would find many of the courses listed in the introductory section useful.

Economics

DEPARTMENT FACULTY

Roger C. Van Tassel, Ph.D., *Professor of Economics, Department Chairman*
James A. Maxwell, Ph.D., *Professor of Economics, Emeritus*
Howard W. Nicholson, Ph.D., *Professor of Economics*
David Ott, Ph.D., *Professor of Economics*
George E. Hargest, M.B.A., *Associate Professor of Economics**
Frank W. Puffer, Ph.D., *Associate Professor of Economics*
Harold T. Moody, Ph.D., *Associate Professor of Economics*
Constantine N. Michalopoulos, Ph.D., *Associate Professor of Economics*
Attiat Ott, Ph.D., *Associate Professor of Economics*
Herrington J. Bryce, Ph.D., *Assistant Professor of Economics**
Donald E. Wise, M.A., *Assistant Professor of Economics*
Alan F. Gummerson, M.A., *Assistant Professor of Economics*
Albert J. Sargent, M.A., *Lecturer in Economics*

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*On leave 1969-70.

UNDERGRADUATE PROGRAM

The undergraduate program is designed to give the student a comprehensive grasp of the underlying principles and functions of economic institutions, and to develop habits of systematic thought. Economics 11 is a prerequisite to all other courses in Economics. Majors in Economics are required to take Economics 205a, Intermediate Economic Theory, and Economics 205b, National Income Analysis and are strongly advised to take Economics 160, Introduction to Statistical Method. Students planning on graduate study in Economics are advised to elect courses in Economic Theory, Statistics and Econometrics, and Mathematics. Some courses in Economics and Business offered in the Evening College may be counted toward the major with the approval of the department chairman.

In addition, at least 36 semester hours of a major's program must be selected from other than the following fields or courses: geography, history, government, international relations, sociology, mathematics 11 and 12, and psychology 11 and 170b.

Candidates for departmental honors may engage in a program of independent study off-campus during one semester of the junior year. These students may work for business firms or government agencies in applied economic research and receive academic credit.

In making elections, students should bear in mind that some advanced courses may be offered only in alternative years.

GRADUATE PROGRAM

The University offers facilities for graduate study and research leading to the Master of Arts degree and Doctor of Philosophy degree in Economics for a small number of selected students.

Graduate students may elect to take a limited amount of work in related courses offered by other departments.

Scholarships and fellowships are available for a limited number of well-prepared students. These appointments exempt their holders from tuition fees and some carry stipends in varying amounts. Several teaching assistantships are also awarded which enable graduate students to gain experience in undergraduate instruction. These carry remission of tuition and a cash payment, up to $2,000 for part-time work (one-half).

MASTER OF ARTS PROGRAM

The Master of Arts program is worked out individually with each student.

An academic year of full-time study in residence, or its strict equivalent in summer sessions and part-time study, is a minimum requirement for a master's degree. Residence study is broadly defined as graduate work done at the University under the immediate personal supervision of at least one member of the University faculty. A program of full-time is equivalent to 24 semester hours.

A student should discuss his plans with the department chairman on or before Registration Day and secure approval of his course program. Each M.A. candidate is required to pass a course in Graduate Economic Theory.

A Master's thesis will be written on a topic in the field of the student's special interest under the supervision of a member of the Department. Each student should be sure to enroll for a thesis course at the beginning of his program. The thesis course is equivalent to six semester hours. This, added to the 24 semester hours of course credit, gives the student the necessary 30 semester hours of credit for the M.A. degree.

DOCTOR OF PHILOSOPHY PROGRAM

Two full academic years of graduate work, or its equivalent in part-time work, is necessary for admission to Ph.D. candidacy. One of these years must be spent in residence at Clark University. In residence is broadly defined as work done at Clark University under the immediate personal supervision of at least one member of the University faculty. For the degree of Doctor of Philosophy, twenty-four semester hours is a normal full-time program.

All candidates for the Ph.D. in Economics are required to demonstrate proficiency in Methods of Quantitative Research in Economics, i.e. by passing designated courses offered in the Department or, in the case of prior preparation, by passing a test given by the Department. Also, students are required to demonstrate proficiency in one of the following: (a) Proficiency in a foreign language closely related to the student's professional interest as an Economist; (b) proficiency in Mathematics for economists.

Each student in the Ph.D. program is required to demonstrate proficiency in Economic Theory. The Economic Theory requirement includes Micro-theory, Macro-theory and the History of Doctrine. Some use of mathematics may be required in the examination in Economic Theory. The student satisfies the Economic Theory requirement by passing a six-hour written examination. This examination is taken, normally, during the third full semester of graduate study.

Upon completion of the Economic Theory requirement, the student is examined in three special fields at a two hour preliminary oral examination given usually within a semester after completion of the Economic Theory requirement. These fields may be selected from among the following: Money and Banking, Public Finance, Industrial Organization, International Trade, Labor, Economic Growth, Regional Economics, Econometrics, or one field selected from related subjects. If Econometrics is selected as a special field, the level of performance required is substantially higher than the general requirement in Econometrics for all Ph.D. candidates. Within a month after having passed the oral exam, each student is expected to make a presentation of his proposed dissertation topic before an informal conference with his dissertation committee. The final examination of two hours, or less, will be devoted exclusively to an oral defense of the dissertation.

The dissertation must be a real contribution to knowledge, based upon independent research, convincingly presented, and acceptably written.

Some teaching experience at Clark or such other teaching as the Department may regard as equivalent, is prerequisite to the Doctor's degree.

COURSES

F11. PRINCIPLES OF ECONOMICS.

Open to freshmen. One semester course offered both semesters.

Four semester hours each semester. Mr. Van Tassel.

12b. CONTEMPORARY ECONOMICS.

This course permits the non-economics major to develop a working knowledge of current economic problems. Readings which require very limited technical skill or knowledge are assigned. Students are expected to participate actively in discussions. Prerequisite: Economics 11.

Three semester hours. Mr. Ott

13a. MONEY AND BANKING.

Three semester hours. Mr. Ott.

141b. ANALYSIS OF FINANCIAL STATEMENTS.

The course is designed for those who may not have studied accounting, but wish to learn something of the methods of the analysis, interpretation and use of financial statements.

Three semester hours. Staff.

142b. ECONOMICS OF UNDERDEVELOPED REGIONS.

An analysis of underdeveloped nations. Economic, cultural, social, and political factors that have an importance in economic development. Prerequisite: Economics 11.

Three semester hours. Mr. Gummerson.

15a. PUBLIC FINANCE.

The principles of governmental expenditures, revenues, and debts, with particular reference to the United States.

Three semester hours. Mrs. Ott.

150a. ECONOMIC HISTORY OF THE UNITED STATES.

An analysis of the development of the American economy. Prerequisite: Economics 11.

Three semester hours. Mr. Gummerson.

160a. INTRODUCTION TO STATISTICAL ANALYSIS.

The theory and application of frequency distributions; measures of central tendency; dispersion; skewness and kurtosis. An introduction to probability theory; estimation by confidence interval; acceptance sampling; quality control; analysis of variance; and other statistical tests of significance complete consideration of univariate distribution. Prerequisite: Mathematics 11 or equivalent.

Three semester hours. Mr. Sargent.

160b. INTRODUCTION TO STATISTICAL ANALYSIS.

Problems are integrated with a systematic presentation of principles and methods. Topics include price and quantity indexes; seasonal trend and cycle analysis; linear and curvilinear regression and consideration of the stochastic (Ut) term. Finally, tests of statistical significance on the parameters of the regression equation are made. Prerequisite: Economics 160a.

Three semester hours. Mr. Sargent.

175a. THE SOVIET ECONOMY.

Introduction to Marxist economics; the historical evolution and present structure of the Soviet Economy; the operation and problems of a centrally planned economy; current reforms and future trends.

Three semester hours. Staff.

200. THEORIES OF ECONOMIC GROWTH.

A systematic survey of the growth theories for both advanced and underdeveloped economies, the measurement of economic growth and change. Prerequisite: Economics 205 or consent of instructor.

Three semester hours. Mr. Gummerson.

205a. INTERMEDIATE ECONOMIC THEORY.

An analysis of contemporary price theory.

Three semester hours. Mr. Wise.

205b. NATIONAL INCOME ANALYSIS.

A study of contemporary income theory.

Three semester hours. Mr. Puffer.

207a. INTERNATIONAL TRADE THEORY.

Emphasis is put on international value determination and the mechanisms for adjusting to international disequilibrium. Prerequisite: Economics 205a.

Three semester hours. Mr. Van Tassel.

207b. INTERNATIONAL ECONOMIC POLICY.

A review of the rise of the world trading economy, techniques of commercial policy, and major questions of international economic policy. Prerequisite: Economics 207a.

Three semesters hours. Mr. Van Tassel.

22a. LABOR ECONOMICS. **Not offered, 1969-70.**

A survey of the nature of labor economics and labor problems, including the several approaches of organized workers and employers to these problems.

Four semester hours.

23b. PROBLEMS IN MONEY AND BANKING. Not offered, 1969-70.
Central banks, particularly the Federal Reserve System; monetary standards; theories of foreign exchange; monetary policy in the United States. Prerequisite: Economics 13a or its equivalent.
Three semester hours.

235b. MACRO POLICY.
An analysis of contemporary problems of economic stabilization. Both monetary and fiscal policies will be involved.
Three semester hours. Mrs. Ott.

24b. HISTORY OF ECONOMIC DOCTRINE.
Beginning with a brief survey of ancient writers, medieval schoolmen and mercantilist authors, this course focuses on the evolution of economic analysis from the time of classical writers to the 1960's and stresses developments in methods by which man has attempted to better understand economic phenomena.
Three semesters hours. Mr. Nicholson.

25b. PROBLEMS IN PUBLIC FINANCE. Not offered, 1969-70.
The Employment Act of 1946 is discussed and methods by which it may be implemented. Other questions examined are: reform of the federal taxation, federal debt policy, the capital budget, federal budgetary procedure. Prerequisite: Economics 15a or its equivalent.
Three semester hours.

26a. INDUSTRIAL ORGANIZATION AND GOVERNMENT CONTROL.
Examination of the various forms of governmental regulation applied to our present industrial organization. Appraisal of existing governmental controls in specific industrial situations.
Three semester hours. Mr. Nicholson.

26b. PROBLEMS IN INDUSTRIAL ORGANIZATION.
Problems of market organization, behavior, and public policy. Conducted on a seminar basis.
Three semester hours. Mr. Nicholson.

265. INTRODUCTION TO ECONOMETRICS.
An introduction to the problems and techniques arising in the application of statistics to economic data. Prerequisite: Economics 160a.
Three semester hours. Mr. Puffer.

271. INTRODUCTION TO MATHEMATICAL ECONOMICS.
An introductory survey of the use of mathematical methods in economic analysis. Special attention is given to the mathematical framework of the theory of price determination. Prerequisite: consent of the instructor.
Three semester hours. Mr. Nicholson.

272b. MATHEMATICAL ECONOMICS. Not offered, 1969-70.
Mathematical approach to Microeconomic Theory including general equilibrium. Intended for advanced undergraduate students with some knowledge of calculus and linear algebra. This course may be taken in lieu of Economics 205a. Prerequisite: consent of instructor.
Three semester hours.

277a. REGIONAL ECONOMICS.

Theoretical and practical aspects of economic development, cyclical changes and trade between regions of the United States. Location theory, growth trends, wage and income differentials, structural unemployment and inequalities in income distribution are considered. Interregional input-output tables emphasized. Prerequisite: Economics 11, or one advanced economics course.

Three semester hours. Mr. Moody.

277b. PROBLEMS IN REGIONAL ECONOMICS.

The application of regional economic theory to problems in regions in the United States. Prerequisite: Economics 277a.

Three semester hours. Mr. Moody.

278b. NATIONAL AND REGIONAL PLANNING. Not offered, 1969-70.

Theory, method and experience of planning. Development planning is examined at both the national and regional levels with emphasis placed on the problems of harmonizing regional with national objectives. Prerequisite: 277a.

Three semester hours.

280. JUNIOR HONORS.

Designed to assist honors candidates in integration of the field. Prerequisite for honors.

Staff.

281. SENIOR HONORS.

Three semester hours each semester. Staff.

301a. ECONOMIC THEORY, MICRO-ECONOMICS.

Theory of consumer behavior, theory of production and costs, elements of linear programming, theory of market relationships. Prerequisite: consent of instructor.

Three semester hours. Mr. Ott.

301b. ECONOMIC THEORY, MICRO-ECONOMIC PROBLEMS.

Pricing of factors, theory of income distribution — profits, rents, interest, welfare economics; general equilibrium theory, input-output analysis, principles of micro-economic dynamics. Prerequisite: consent of instructor.

Three semester hours. Mr. Wise.

302a. ECONOMIC THEORY — MACRO.

Income and employment theory. A study of the variables of macroeconomics. The pre-Keynesian and Keynesian aggregative systems. Prerequisite: consent of instructor.

Three semester hours. Mrs. Ott.

302b. ECONOMIC THEORY — MACRO ECONOMIC PROBLEMS.

Mathematical and econometric models of the economic system, business cycles and forecasting and macroeconomic public policy. Prerequisite: consent of instructor.

Three semester hours. Mr. Puffer.

313b. MONEY AND BANKING SEMINAR.

The process of money creation and money flows; an analysis of the monetary and banking system, money and capital markets, and the role of financial intermediaries; analysis of monetary policy instruments and their effectiveness; competing objectives of monetary policy; relation of these objectives to fiscal policy, debt management, and economic growth. Prerequisite: consent of the instructor.

Three semester hours. Mr. Ott.

325b. PUBLIC FINANCE SEMINAR.

A study of the theory of public finance, fiscal policy, institutional arrangements, and policy problems. Prerequisite: consent of instructor.

Three semester hours. Mrs. Ott

327a. INTERNATIONAL TRADE THEORY.

The theory of international trade and finance. Problems in international economics with particular attention on international finance. Prerequisite: consent of instructor.

Three semester hours. Mr. Gummerson.

390a. THEORY OF ECONOMETRICS.

The application of statistical techniques to the verification of economic postulates and problems. Topics considered are: the linear normal regression model, single equation econometric problems, simultaneous equation estimating techniques, spectral analysis and factor analysis. Prerequisite: consent of instructor.

Three semester hours. Mr. Puffer.

390b. ECONOMETRIC APPLICATIONS.

Application of econometric techniques to economic research problems. Analysis of econometric applications in the professional literature. Prerequisite: consent of instructor.

Three semester hours. Mr. Puffer.

300. READING }
30. THESIS } IN ECONOMIC GROWTH. Staff.

31. THESIS: IN MONEY AND BANKING. Mr. Ott.

322. READING }
32. THESIS } IN LABOR. Staff.

34. THESIS: IN PUBLIC FINANCE AND FISCAL POLICY. Mrs. Ott.

326. READING } IN BUSINESS ORGANIZATION AND GOVERNMENT
35. THESIS } CONTROL OF INDUSTRY. Mr. Nicholson.

36. THESIS: IN INTERNATIONAL ECONOMICS. Mr. Van Tassel.

329. READING }
37. THESIS } IN STATISTICAL METHODS. Mr. Nicholson.

334. READING }
38. THESIS } IN HISTORY OF ECONOMIC THOUGHT. Mr. Nicholson.

339. READING }
320. THESIS } IN ECONOMIC THEORY. Staff.

Education

DEPARTMENT FACULTY

William C. Kvaraceus, Ed.D., *Professor of Education and Sociology, Department Chairman*
Helen J. Kenney, Ed.D., *Associate Professor of Education*
Richard J. Gordon, Ph.D., *Assistant Professor of Education*
Spencer R. Potter, Ed.D., *Assistant Professor of Education*
Martin W. Roll, Ph.D., *Visiting Lecturer in Education*
Marcia A. Savage, Ed.D., *Assistant Professor of Education*
Irving A. Schwartz, M.A., *Assistant Professor of Education and Clinical Instructor in Social Studies*
Bernard Stotsky, M.D., *Lecturer (Visiting) in Education*
William E. Topkin, Ed.D., *Assistant Professor of Education*

With the cooperation of Professor Reid of the Department of Romance Languages, Professor Warman of the Department of Geography, Professor Beck of the Department of Philosophy, and Professor Vogel of the Department of Psychology, and Visiting Lecturers.

UNDERGRADUATE PROGRAM

The department encourages all students who may be interested in preparing for careers in education to consult with some member of its staff early in their careers at the University. The actual election of courses in education, however, should be postponed until the junior year. During the first two years, students should complete as many of the specific requirements for the degree of Bachelor of Arts as possible, and lay a broad foundation of scholarship in the subjects in which they wish to specialize.

In conformity with its policy of emphasizing the importance of scholarly background, the department offers its courses as electives, and not as undergraduate majors.

GRADUATE PROGRAM

The department offers one program leading to the degree of Master of Arts in Education and another leading to the degree of Doctor of Education.

Master of Arts in Education: For graduate students wishing to prepare for teaching and/or guidance in public or private secondary or elementary schools, the department offers a fifth-year program leading to the degree of Master of Arts in Education.

Admission Requirements: In addition to the general admission requirements to the Graduate School, a personal interview is usually required by the Department of Education.

Programs Available: Three programs leading to the degree of Master of Arts in Education are available:

1. A full or part time program in teacher preparation for students with a bachelor's degree and strong academic background. Superior students may complete this program in one year. It includes appreciable advanced work in the academic fields and internship experiences.
2. A program in educational Psychology and educational Sociology, full or part-time.
3. A study-teach program in cooperation with the Department of Romance Languages, involving instruction in beginning college courses leading to a Master of Arts in Teaching. This is a two-year program in which the student typically receives a

Teaching Assistant Scholarship involving remission of tuition and a cash stipend; the intern devotes half-time to supervised teaching and other service to the Department of Romance Languages. In light of the extensive internship teaching experience, the number of courses in education may be reduced to equal that in the subject matter field. The assisting or teaching is a part of the requirements of all students in T.A.S. Program. As part of the study of Romance languages and literature, the departments look with favor on study abroad for at least one summer, but this is not a requirement.

Course Requirements. For further details on course requirements, consult the Department of Education.

Internships: The department provides opportunities for an extended internship experience under supervision for all graduate students. For graduate students who have not had teaching experience, satisfactory work in internship teaching is a requirement for the degree of Master of Arts in Education.

Thesis or Additional Study in Lieu of Thesis. All candidates for the degree of Master of Arts in Education must choose one of the following plans:

(a) Prepare an acceptable thesis.

(b) Elect, in lieu of thesis, two additional semester courses.

(c) Elect, in lieu of thesis, a seminar in which intensive work will be required in preparing and presenting reports before fellow graduate students and a member of the staff.

Final oral examination. The passing of a final oral examination will be required of all candidates.

Doctor of Education: A new program for the degree of Doctor of Education has been established with two emphases: (1) on human development and learning as it relates to curriculum, instruction, and evaluation; and (2) on the sociology of education. The new Doctorate aims to prepare two kinds of specialists, one who would function as an educational analyst and one as a social analyst. Applicants for admission to the program will be expected to give evidence of high scholarly achievement and leadership promise in their chosen field. Other evidence of potential such as results from Graduate Record Examinations, Miller Analogies, etc. may be required. Personal interviews with staff of the Department are required before applications are acted upon. In special cases, foreign students may be excused from the Examination and interview requirement.

COURSES

200. GEOGRAPHY IN EDUCATION.

Refer to description under Geography 200a and b.

Three semester hours each semester. Mr. Warman.

201a. EDUCATIONAL PSYCHOLOGY: CHILD GROWTH AND DEVELOPMENT.

Principles of child development with emphasis upon maturation, learning and personality development in the elementary school years.

Three semester hours. Section 1, Miss Savage; Section 2, to be announced.

201b. EDUCATIONAL PSYCHOLOGY: ADOLESCENT GROWTH AND DEVELOPMENT.

Principles of adolescent development with special emphasis upon learning and personality development in the secondary school years.

Three semester hours. Section 1, Miss Savage; Section 2, to be announced.

203b. CURRICULUM DEVELOPMENT IN SECONDARY EDUCATION.

The basic objectives, issues, principles and procedures of curriculum organization and development in secondary schools, including the organization of learning experience in reference to developmental and subject-matter sequences. Admission on consent of the Department.

Three semester hours. Mr. Gordon.

205a. THE SOCIOLOGY OF THE SCHOOL.

A study of social forces and their relations to the school as a stabilizing agent and as an agent of change.

Three semester hours. Mr. Kvaraceus.

209a. INTRODUCTION TO AMERICAN EDUCATION. (THE AMERICAN SCHOOL)

A comprehensive and systematic study of American Education with emphasis on recent innovations, the role of the states and the Federal Government in Education, the structure and organization of the schools, and the status of teachers. Intended for prospective and in-service teachers and others with an interest in American Education.

Three semester hours. Mr. Gordon.

217a.b. INTERNSHIP TEACHING IN THE SECONDARY SCHOOL.

An intensive period of observation and teaching in the field or fields in which the student plans to teach. Individual supervision is given by the department and by critic teacher in co-operating schools. Admission on consent of the Department. For special students this may be taken as a part of the Internship Module in Education.

Six semester hours. Mr. Gordon, Mr. Potter, and Supervising Teachers.

221. INTERNSHIP TEACHING IN MUSIC.

Consent of Music Department required.

230b. PSYCHO-SOCIAL DEVELOPMENT OF ADOLESCENTS IN EDUCATIONAL SETTINGS.

Class enrollment limited. Permission of the instructor required.

Three semester hours. Section 1, Miss Savage; Section 2, to be announced.

270. (ROMANCE LANGUAGES 270) THE TEACHING OF ROMANCE LANGUAGES.

A practicum course for Teaching Assistant Scholars serving as first-year Interns in the Department of Romance Languages. This course will include a weekly lecture and readings to provide a basis in the theory of applied linguistics; directed teaching in language courses; and a semi-monthly seminar for discussion of the relations between theory and practice.

Three semester hours each semester. Mr. Reid and Staff.

271. (ROMANCE LANGUAGES 271) THE TEACHING OF ROMANCE LANGUAGES — ADVANCED.

A continuation of course 270 for second-year Interns.

Three semester hours each semester. Mr. Reid and Staff.

280b. JUVENILE DELINQUENCY AND THE SCHOOL.

Considers the role of the school as a central agency in the prevention and control of norm-violating behavior.

Three semester hours. Mr. Kvaraceus.

287a.b. INTERNSHIP MODULE IN EDUCATION.

This internship provides an intensive work-study experience in elementary and secondary schools and other educational agencies in the Worcester area. It involves three phases: (1) an introductory campus seminar; (2) a full-time work experience in schools or in some other educational, welfare, and recreation agency; and (3) an evaluation and review seminar.

The content of the seminars includes units of instruction covering such areas as human development, theories of learning and teaching, educational measurement and appraisal, development of instructional materials and methods, and organization and structure of the school and related agencies.

The internship offers a wide variety of specialized learning opportunities to meet the different interests and backgrounds of the students. These include experiences in educational testing and diagnosis, educational research, curriculum construction and experimentation and school administration as well as in classroom teaching and individual tutoring.

Limited to seniors who will have completed major requirements and whose grade point average reflects high level of scholarship.

Twelve to fifteen semester hours. Dr. Kenney, Dr. Gordon, Dr. Kvaraceus and others.

290b. PHILOSOPHY OF EDUCATION.

The aims, processes and materials of education with special reference to the influence of philosophical ideas on educational problems.

Three semester hours. Mr. Beck.

305b. GROUP PROCESSES IN EDUCATION.

A study of group phenomena with emphasis upon the small group in teaching and counseling.

Three semester hours. To be announced.

311a. PRINCIPLES AND PRACTICES OF GUIDANCE. 3 credits.

Consideration will be given to the rationale for pupil personnel services in the public schools and to the organization and means by which the services may be organized and offered to the student body. Mr. Potter.

312a. GUIDANCE: COUNSELING.

Emphasis will be upon the theory and methodology of counseling and upon the management of typical counseling problems. The diagnosis and referral of behavior disorders and related personality maladjustments will be considered. Case material will be presented and analyzed. (311a must be taken simultaneously or have been taken previously.)

Three semester hours. Mr. Topkin.

312b. VOCATIONAL THEORY, OCCUPATIONAL INFORMATION AND PLACEMENT. 3 credits.

This course deals with three areas: (1) a review of vocational theory; (2) the use of informational services relevant to educational and vocational counseling; (3 placement.

Mr. Potter.

314a. TESTS AND EVALUATION.

The methods and problems involved in the evaluation of abilities, interests and achievement of children and youth. Attention will be given both to standardized instruments and to teacher-made tests of achievement.

Three semester hours. To be announced.

314b. TESTS AND EVALUATION: ADVANCED PROBLEMS.
The measurement and evaluation of aptitudes, attitudes, and personality with attention to the use of such measures in teaching and counseling.
Three semester hours. To be announced.

316a. BEHAVIORAL DISTURBANCE AND CONTEMPORARY PROBLEMS IN EDUCATION
Three semester hours. Mr. Vogel.

317a. INDIVIDUAL ASSESSMENT OF MENTAL ABILITIES
Three semester hours. Miss Moosey.

319a.b. RESEARCH DESIGN AND STATISTICAL METHODS I AND II.
Theory and application of principles of research methods and techniques with special reference to the selection and planning of an original research project.
Three semester hours each semester. Miss Kenney and Staff.

320a.b. SEMINAR IN THE SOCIOLOGY OF EDUCATION I, II.
Examines school as a social system with reference to problem of planning, initiating, and sustaining the school as a viable social agency. Considers theoretical and practical aspects of the educator as a change agent.
Three semester hours each semester. To be announced.

322a.b. PRACTICUM IN GUIDANCE.
By special arrangement with the Department.
Three semester hours. Staff.

326. ADVANCED PRACTICUM IN GUIDANCE AND COUNSELING.
By special arrangement with the Department.
Three semester hours each semester. Staff.

335a.b. HUMAN LEARNING: THEORY AND PRACTICE.
Reviews current theories and relates them to individual and group instruction in the classroom with particular reference to problems of individual differences faced by the classroom teacher. Mr. Roll.
Three semester hours each semester.

350. RESEARCH IN EDUCATION.
Individual direction of students in their research projects.
Three semester hours each semester. Staff.

379a.b. ADVANCED GRADUATE INTERNSHIP IN EDUCATION.
Three semester hours. Staff.

380b. DEPARTMENTAL SEMINAR ON CURRENT PROBLEMS.
Three semester hours. Staff.

GRADUATE READINGS AND THESIS COURSES

38. } DIRECTED READINGS IN EDUCATIONAL PSYCHOLOGY.
381. } THESIS. Staff.

39. } DIRECTED READINGS IN COUNSELING.
391. } THESIS. Staff.

Dr. Marlin H. Roll, B.A., State University of Iowa, February 5, 1949; Major: General Science. M.A., State University of Iowa, August 8, 1951; Major: Special Education. Ph.D., State University of Iowa, February 7, 1959; Major: Educational Psychology and Special Education Dissertation: "Social Class of Parents of Custodial, Trainable and Educable Mentally Retarded Children."

English

DEPARTMENT FACULTY

William H. Carter, Jr., Ph.D., *Professor of English, Department Chairman*
Karl O. E. Anderson, Ph.D., *Professor of English*
James F. Beard, Jr., Ph.D., *Professor of English*
Charles S. Blinderman, Ph.D., *Professor of English***
James Macris, Ph.D., *Professor of English and Linguistics*
Stanley Sultan, Ph.D., *Professor of English*
Jessie C. Cunningham, A.M., *Associate Professor of English*
Serena S. Hilsinger, Ph.D., *Associate Professor of English**
Neil R. Schroeder, Ph.D., *Associate Professor of English*
Robert A. Barakat, M.A., *Assistant Professor of English*
Alvin Hugh McLean, M.A., *Visiting Assistant Professor of English*
Andrew C. T. Clark, M.A., *Visiting Instructor of English*
Donald Bacon, M.A., *Lecturer in English*
Virginia M. Rasmussen, M.A., *Lecturer in English*

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*On leave of absence, first semester, 1969-70.

**On leave of absence, second semester, 1969-70.

UNDERGRADUATE PROGRAM

English 10a or b, Introduction to Literature, is a prerequisite for all other literature courses in the English Department. All year-courses in English are divisible.

An undergraduate major in English and American Literature is expected to acquire a liberal education with a board background in the arts and sciences. To do so, he should become familiar with several fields in the humanities, the social sciences, mathematics, and the sciences; and insofar as is possible he should attempt to achieve depth in at least one area outside his major field. At each registration period, the student should discuss his program with his adviser.

The English major must take a minimum of thirty hours in literature courses, not counting English 12, 16, 17, 18, and 19. In addition, he must take a minimum of twenty hours of related courses in other fields, as specified under *Related Courses* below. No student is permitted to take *more* than eighty-four hours in his major and related fields.

Literature Courses. The minimum thirty hours of literature courses required of the English major must include the following:

1. English 10a or b, taken preferably in the freshman year and no later than the sophomore year.
2. English 13a or b, preferably taken no later than the sophomore year.
3. Either English 14 or English 15, normally taken before the senior year.
4. A minimum of twelve hours in courses or seminars at the 200 level. English 250 and 260b may be taken in partial fulfillment of this requirement.

To make sure that students develop some historical perspective and an awareness of the range and variety of English and American literature, all English majors must include in their programs at least:

a. Three semester-courses dealing with literature written before 1700: English 15a, 112b, 201a, 202b, 204, and 213.

b. Three semester-courses dealing with literature written from 1700 to 1900: English 14, 15b, 111, 205, 210, and 217.

Several English seminars also meet this requirement, depending on the subjects. Since the topics for seminars vary from year to year, the seminars fulfilling either half of this requirement cannot be listed here by name.

Courses in Foreign Literature. Of the courses listed under "Comparative Literature" and "Theatre Art," Comparative Literature 18, 19a or 20a, English 245b, Theatre Art 153a, and up to six hours of the following – German 197a, German 199, Russian 180 – may be counted towards the English major.

Related Courses. The minimum twenty hours of related courses required of the English major must include the following:

1. Six or more hours of History, especially courses in English and American history.
2. Six or more hours of Philosophy.
3. Any selection from the following, but the student should endeavor to take courses from as many different fields as are necessary to give him the breadth to make his major meaningful and comprehensive:

a. Civilization Courses: Classics 123a and 123b, French 113, and German 141.
b. Linguistics 115.
c. Psychology 126b.
d. Theatre Art (with the exception of Theatre Art 153a, which may be counted as a literature course in the English major).

As long as the student fulfills the requirements specified above, he is entitled to elect any combination of courses ranging from fifty to eighty-four semester hours in his major and related fields.

Courses Recommended Outside the Major and Related Fields. Like all undergraduates, the English major must elect at least thirty-six hours of courses *outside* his major and its related fields. These courses must be selected from the offerings of the following Departments: Biology, Chemistry, Economics, Education, Fine Arts (with the exception of studio courses), Geography, Geology, German, Government and International Relations, Mathematics, Music, Physics, Psychology, Romance Languages, Russian, Sociology. The following courses are especially recommended:

a. Government 14, 15, and 254.
b. Psychology 12b, 103b, 170b, 172a, 202a, and 209a and b.
c. Sociology 12a, 13b, 14a, 15, and 24b.
d. *Science and Mathematics.* Inasmuch as courses in science and mathematics give the student experience in areas of learning which have crucial influence on contemporary culture, every English major is strongly urged to take at least one year-course in mathematics and one in science.
e. *Foreign Languages.* Every English major is strongly advised to acquire proficiency in at least one foreign language. In addition, those students who intend to go on to graduate school should be aware that a reading knowledge of French, German, and Latin is frequently required of doctoral candidates.

Honors Program. Qualified students may apply in the spring of their sophomore year to participate in the three-semester Honors Program in English. Honors Candidates take the Junior Honors Seminar in the second semester of their junior year; in the first semester of the senior year, they take a reading course, beginning work on their Honors Thesis and preparing for the examinations — written and oral — which are given at the end of the semester; in the second semester of the senior year, they complete the writing of the thesis.

Cooperative Programs. The range of course offerings open to majors is being extended by the establishment of a cooperative arrangement with the English Departments at Assumption College and the College of the Holy Cross. With the permission of the Department, majors may take a few carefully selected courses in literature and linguistics at these institutions. Another consortium program that may be of interest is listed under "Theatre Art"; only Theatre Art 153a may be counted as a literature course in the English major.

GRADUATE PROGRAM

The University offers a program leading to the Master of Arts degree in English. A limited number of scholarships providing tuition remission are available for superior students. The department also offers several teaching assistantships, involving half-time teaching and half-time study, with a stipend up to $2400 plus the remission of tuition.

For the Master of Arts, the student must satisfactorily complete at least 30 semester hours of work, including English 300a (Introduction to Graduate Studies), English 250a (English Language), and at least one seminar. He must also write an acceptable master's thesis (which, with an associated reading course, English 31, may count up to 6 of the required 30 semester hours); he must pass a written Foreign Language Examination (in Greek, Latin, French, German, Italian, Russian, Spanish, or another foreign language approved by the Department) ; and he must pass a final oral examination.

COURSES

F10a and b. INTRODUCTION TO LITERATURE.

This course deals with the problems common to all the literary genres — such as the handling of diction, imagery, point of view, tone, and structure — but each section has its own set of readings focused on a particular concept or theme. Students will be permitted to make their own choices of section as far as possible. Offered both semesters.

Three semester hours. Staff.

F12b. SPEECH. Not offered, 1969-70.

A fundamental course in public speaking which concentrates on practical experience in the most common types of speeches. Enrollment limited to fifteen students. Prerequisite: consent of the instructor.

Three semester hours. Mr. Schroeder.

13a and b. INTRODUCTION TO POETRY.

A course introducing the student to a variety of critical approaches to poetry and affording extensive experience in reading, discussing and writing about individual poems. Attention is given to as many as possible of the chief kinds, functions and values of poetry. Offered both semesters.

Three semester hours. Mr. Carter, Mr. Clark, Mrs. Hilsinger.

14. ENGLISH NOVEL.

A study of the English novel from its beginning to the end of the nineteenth century. The first semester includes Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and three or four minor novelists. The second semester considers Scott, Thackeray, Dickens, George Eliot, James, Hardy, Conrad, and two or three minor novelists. Some emphasis is placed on the development of the novel as a literary form.

Three semester hours each semester. Mrs. Cunningham.

15. ENGLISH DRAMA.

A course in the major periods of English drama before the twentieth century. The first semester covers medieval religious drama and the drama of Tudor and Stuart England. The second semester covers British drama from 1660 to the beginning of the twentieth century.

Three semester hours each semester.

First semester, Mr. Schroeder; Second semester, Mr. Sultan.

16a. CREATIVE WRITING. Not offered, 1969-70.

A course designed to cultivate and guide student work in the short story, the lyric poem, and the informal essay. Class meetings deal largely with important aspects of the art of fiction: published literary works and student manuscripts are discussed. Not open to freshmen. Prerequisite: a one-semester course in literature.

Three semester hours. Mr. Sultan.

17b. CREATIVE WRITING: SECOND COURSE.

Open to students who have taken English 16a and to other students interested in writing verse. Prerequisite the same as for English 16a.

Three semester hours. Mr. Sultan.

F18a and b. EXPOSITORY WRITING.

This course is designed to help students improve their expository writing through the study and application of rhetorical methods. Diction, sentence structure, paragraph integrity, theme organization, logic, semantics, persuasion, the relationship of idea to expression and of expression to audience are among the matters analyzed. Offered both semesters.

Three semeter hours. Staff.

19a. INTERMEDIATE COMPOSITION.

This course is designed to help those who have already acquired competence in expository writing to improve their style and effectiveness through practical experience. Special emphasis will be placed on stylistics, techniques of persuasion, and methods of organization through the study of works of established essayists and the close analysis of student papers. Enrollment limited to fifteen students. Prerequisite: English 11 (discontinued) or English 18 (formerly English 19) and consent of the instructor.

Three semester hours. Mr. Blinderman.

88. DIRECTED READINGS.

Variable credit. Staff.

111. AMERICAN LITERATURE.

Through study of representative masterworks, the course traces the main currents of American literature from Puritan times to the present. Authors read during the first semester include Sewall, Edwards, Franklin, Cooper, Poe, Hawthorne, Thoreau, Emerson, Melville and Whitman; during the second semester, Twain, Howells, Dickinson, Adams, Crane, James, Frost, Eliot, Faulkner and Hemingway.

Three semester hours each semester. Mr. Beard.

112b. ELIZABETHAN NON-DRAMATIC LITERATURE. Not offered, 1969-70.

Elizabethan prose and poetry, excluding drama, will be considered in their cultural, intellectual, and literary context. Special attention will be devoted to the works of Sidney, Spenser, Shakespeare, Jonson and Donne; but many minor figures (Wyatt, Surrey, Nashe, Lyly, Greene, etc.) will also be considered. Offered at the discretion of the department.

Three semester hours.

114b. THE LITERATURE OF ELIZABETHAN STREETS.

A study of popular entertainment in Elizabethan England, including such forms as popular drama, Elizabethan fiction and romance, literature of roguery and crime, descriptions of social conditions, broadside ballads, and hack verse on topical events.

Three semester hours. Mr. Schroeder and Mr. Clark.

129. MODERN DRAMA.

A survey, with special emphasis on several major figures, of drama from Ibsen to the present. The first semester traces the development of naturalism, the emergence of modern realistic drama and early reactions to realism. The second semester covers the period from before World War II to the present and examines several of the major post-war movements, including Black theatre, and some of the non-dramatic forms which they have produced, including film.

Three semester hours each semester.

First semester, Mr. Schroeder; Second semester, Mr. Schroeder and Mr. Clark.

143b. MODERN BRITISH FICTION.

The course deals primarily with the work of four twentieth century British writers of fiction: Joyce, Lawrence, Woolf and Durrell.

Three semester hours. Mrs. Hilsinger.

144a. CONTEMPORARY AMERICAN FICTION.

A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insights, and philosophical implications. Authors read include Dreiser, James, Anderson, Fitzgerald, Hemingway, Wolfe, Faulkner and Mailer.

Three semester hours. Mr. Beard.

150a. LITERATURE OF WESTERN CIVILIZATION. Not offered, 1969-70.

A study of literature basic to the cultural development of western civilization; selections range in subject from mythology to political science, in type from the epic poem to the essay, and in time from Greek antiquity to the Renaissance.

Three semester hours. Mr. Blinderman.

155b. JUNIOR HONORS SEMINAR.
Restricted to juniors who are candidates for honors in English. The purpose of the seminar is to prepare the student for the advanced independent study of literature. Such subjects as the definition of genres, the nature of metaphor, and critical approaches to literature are studied.
Four semester hours. Mrs. Cunningham.

156. HONORS IN ENGLISH: SENIOR YEAR.
Four semester hours each semester. Staff.

201b. CHAUCER.
An introduction to Middle English grammar, pronunciation, and scansion, and a study of *Troilus and Criseide* and the best of the *Canterbury Tales,* followed by a more rapid reading of at least three of Chaucer's earlier works, such as *The Book of the Duchess, The House of Fame, The Parliament of Fowls,* and *The Legend of Good Women.*
Four semester hours. Mr. Anderson.

202b. MEDIEVAL LITERATURE.
A study of the literature of Western Europe before 1500. The works read include epics such as *Beowulf, The Song of Roland, The Nibelungenlied,* and the *Njal's Saga;* historical writings and folk tales important in the development of the Arthur story; romances such as *Perceval, Tristan and Isolde,* and *Gawain and the Green Knight;* Dante's *Divine Comedy: Inferno;* selections from Chaucer's *Canterbury Tales.*
Four semester hours. Mr. Anderson.

204a. SEVENTEENTH CENTURY.
A survey of selected Metaphysical and Cavalier poets, masterpieces of seventeenth century prose, and the rise of English neo-classicism. Offered in alternate years.
Four semester hours. Mr. Carter.

204b. SEMINAR: MILTON.
An intensive reading of Milton's poems and selected prose. Offered in alternate years. Prerequisite: consent of the instructor.
Four semester hours. Mr. Carter.

205. EIGHTEENTH CENTURY. Not offered, 1969-70.
During the first semester, prose works such as Defoe's *Moll Flanders* and Swift's *Gulliver's Travels,* plays such as Gay's *Beggar' Opera* and Lillo's *London Merchant,* and the major poems of Pope and Swift are considered. During the second semester, prose works by Boswell and Johnson; novels by Richardson, Fielding, Smollet, Sterne; plays by Fielding, Goldsmith, Sheridan; and poetry by Thomson, Collins, Gray, Burns and Blake are studied. Offered in alternate years.
Four semester hours each semester. Mr. Carter.

206a. SEMINAR: SPECIAL STUDIES IN RENAISSANCE DRAMA. Not offered, 1969-70.
A seminar devoted to the intensive study of a small group of dramatists or a special dramatic problem of the Renaissance. Prerequisite: consent of the instructor. Offered at the discretion of the Department.
Four semester hours. Mr. Schroeder.

207b. SEMINAR: THE CONCEPT OF TRAGEDY. Not offered, 1969-70.

Through the study of approximately twenty plays, three novels, and a number of poems, from the Greek and Hebrew origins of Western Culture to the present time, this course analyzes the nature of tragedy, the changes which this concept has undergone, the relation of these changes to shifting views of man and the universe, and the significance of the study of tragedy to us today. Prerequisite: consent of the instructor.

Four semester hours. Mr. Anderson.

210. VICTORIAN LITERATURE. Not offered, 1969-70.

A survey of Victorian literature through the major movements and figures. In the first semester, Carlyle, Macauley, Mill and Newman are studied as representative spokesmen of prevailing ideological movements, such as Transcendentalism, Utilitarianism, Anglo-Catholicism; Tennyson and Browning are the major poets studied. In the second semester, the movements include Darwinism, Aestheticism and Imperialism; Huxley, Arnold, Pater, Ruskin, Wilde and Hardy are among the authors read. Offered in alternate years.

Four semester hours each semester. Mr. Blinderman.

212a. SEMINAR: AMERICAN LITERARY RENAISSANCE. Not offered, 1969-70.

This course will explore characteristic writings of Emerson, Thoreau, Hawthorne, Melville, and Whitman; consider their personal and literary interrelations; and seek to evaluate their artistic and cultural influences in the larger context of American society. Prerequisite: consent of the instructor.

Four semester hours. Mr. Beard.

213. SHAKESPEARE.

Approximately twenty plays, with supplementary critical essays, are read through the year as a basis for a study of Shakespeare's development as a dramatist and his changing attitude toward life. The second semester is devoted mainly to a careful analysis of *Hamlet, Othello, Lear, Macbeth* and *Anthony and Cleopatra.*

Four semester hours each semester. Mr. Anderson.

214b. SEMINAR: DARWINISM. Not offered, 1969-70.

This seminar, of an interdisciplinary nature, is devoted to the study of original and research materials elucidating the scientific, philosophical, religious and social dimensions of Darwinism. The course examines chiefly the survival of the fittest Darwinian ideas in English and American literature. Prerequisite: consent of the instructor.

Four semester hours. Mr. Blinderman.

216a. SEMINAR: ROMANTIC AND VICTORIAN GOTHIC.

The seminar will call forth the Gothic spirit from its incarnations in architecture, painting, and literature — graveyard poetry, Gothic novels, *Frankenstein*. Films and a field trip.

Four semester hours. Mr. Blinderman.

217. LITERATURE OF THE ROMANTIC PERIOD. First semester only, 1969-70.
The first semester includes reading of prose works (essays and a Gothic novel), study of eighteenth century predecessors of the Romantic Movement, and exposure to background information; emphasis is placed upon the major poetry of the major Romantic poets: Blake, Coleridge, Wordsworth, Byron, Shelley, and Keats. The second semester will involve an investigation of Romantic Theory and a study of Continental and American Romantic Literature. Offered in alternate years.
Four semester hours each semester. Mr. Blinderman.

220a. TWENTIETH-CENTURY POETRY. Not offered, 1969-70.
A survey, with special attention to the genesis and development of modernism and to tendencies during the last few years toward a dominant new movement in English poetry. The works of almost fifty poets, ranging in time from Emily Dickinson to Robert Creeley, are considered. Offered in alternate years. Prerequisite: consent of the instructor.
Four semester hours. Mr. Sultan.

222a. SEMINAR: FIVE TWENTIETH-CENTURY POETS.
A seminar in the lyric poetry of Yeats, Eliot, Auden, Thomas, and a poet selected by the class, for students who have taken English 220a or the equivalent. Offered in alternate years. Prerequisite: consent of the instructor.
Four semester hours. Mr. Sultan.

225b. SEMINAR: TWENTIETH CENTURY AMERICAN LITERATURE.
The course will include readings and discussions of a significant group of twentieth century American writers — O'Neill, Eliot, Robinson, Frost, Hemingway, Faulkner, and Stevens — as artists and as representatives of tendencies and influences in American civilization. Prerequisite: consent of the instructor.
Four semester hours. Mr. Beard.

226a. SEMINAR: REALISM AND NATURALISM IN AMERICAN FICTION.
A study of realism and naturalism in representative American fiction from about 1865 to about 1965, with attention to their esthetic, social, and philosophic implications. Writers considered include Twain, Howells, Frederic, James, Norris, Dreiser, Farrell, Steinbeck, and Mailer. Prerequisite: consent of the instructor.
Four semester hours. Mr. Beard.

227b. SEMINAR: IBSEN.
An intensive study of most of the plays and selected letters and speeches of Ibsen and of criticism of his life and work. Independent study and research is emphasized. Prerequisite: consent of instructor.
Four semester hours. Mr. Schroeder.

230a. SEMINAR: THE BRONTËS AND HARDY.
A study of selected poetry and fiction of Charlotte, Emily and Anne Brontë and of Thomas Hardy: their dramatic affinities, their cosmic vision, their literary techniques. Offered at the discretion of the Department. Prerequisite: consent of the instructor.
Four semester hours. Mrs. Cunningham.

231b. SEMINAR: THE IRISH LITERARY REVIVAL.

A course in the inception, development and effect of the literary movement during the end of the last century and first decades of this one that created an Irish literature in English. Writers studied include Yeats, Joyce, Synge and O'Casey. The cultural, historical and political backgrounds of Anglo-Irish literature are also studied. Offered at the discretion of the department. Prerequisite: consent of the instructor.

Four semester hours. Mr. Sultan.

232a. SEMINAR: CONRAD, LAWRENCE AND JOYCE. Not offered, 1969-70.

This course deals with the development and accomplishment in the genres of the short story and the novel of three major writers of fiction of the twentieth century. Offered at the discretion of the Department. Prerequisite: consent of the instructor.

Four semester hours. Mr. Sultan.

235b. SEMINAR: BLOOMSBURY GROUP.

This seminar will consider the aesthetic and social theories expressed in the novels of Virginia Woolf and E. M. Forster and in the essays of these and other members of the Bloomsbury Circle. Prerequisite: consent of the instructor.

Four semester hours. Mrs. Hilsinger.

ENGLISH 240a and b. AFRO-AMERICAN LITERATURE.

A study of selected Afro-American writers in prose and poetry. This course proposes to introduce the student to the vast body of writing by American Black authors, focusing on the evolution of their expression and its artistic merit.

Four semester hours. Mr. McLean.

245b. SEMINAR: MODERN CONTINENTAL FICTION.

Masterpieces by modern European novelists (Flaubert, Turgenev, Tolstoy, Dostoyevsky, Gide, Proust, Mann, Kafka and Camus) are studied in translation, with special attention to their formal philosophical, moral, social, political, and psychological values. Prerequisite: consent of the instructor.

Four semester hours. Mr. Beard.

250. HISTORY OF THE ENGLISH LANGUAGE.

The first semester deals with the development of the phonology and lexicon of English, viewed as a dynamic series of systems. The course also describes the homeland, language, and culture of the Proto-Indo-Europeans as background for a treatment of the structural relationships between English and other languages of the Indo-European family. The second semester concentrates on the development of the grammar of English, also treated dynamically and systemically. The course includes an analysis of the establishment of Standard British English, the doctrine of correctness, and the growth of Modern American English in its sociocultural setting. Prerequisite: consent of the instructor.

Four semester hours each semester. Mr. Macris.

260b. SEMINAR: MODERN AMERICAN ENGLISH. Not offered, 1969-70.

This seminar analyzes the grammatical structure of Modern American English. It concentrates on an evaluational system for handling spoken and written English and the application of this system to problems of current English usage. The relevance of linguistic theory and methodology to the teaching of English receives special attention. Prerequisite: consent of the instructor.

Four semester hours. Mr. Macris.

261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE.

A study of what modern linguistics has to offer in the analysis and criticism of literature, with special attention to the contributions of the generative-transformational, tagmemic, and parametric approaches. Prerequisite: consent of the instructor.

Four semester hours. Mr. Macris.

300a. INTRODUCTION TO GRADUATE STUDIES.

This course is devoted to an intensive general study of the three principal areas in the discipline — bibliography and textual analysis, literary history, and literary criticism — and to the relationships among them. In the study of literary criticism, alternative theoretical approaches and applications of them are examined.

Four semester hours. Mr. Sultan.

301b. SEMINAR: CHAUCER. Not offered, 1969-70.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is emphasized. Prerequisite: English 201b and consent of the instructor.

Four semester hours. Mr. Anderson.

315a. SEMINAR: SPECIAL STUDIES IN SHAKESPEARE.

A detailed study of selected problems of interpretation and evaluation, with wide reading in critical material and general background. Independent and original study is ememphasized. Prerequisite: English 201b and consent of the instructor.

Four semester hours. Mr. Anderson.

GRADUATE READING AND THESIS COURSES

31. } READING COURSE.
310. } MASTER'S THESIS. Staff.

Fine Arts

DEPARTMENT FACULTY

Samuel P. Cowardin, III, Ph.D., *Associate Professor of Fine Arts, Department Chairman*
Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*
William M. Kane, M.A., *Assistant Professor (affiliate) in Fine Arts*
John T. Murphey, B.S., in Ed., *Assistant Professor of Fine Arts*
Margaret Graham, M.A., *Instructor (affiliate) in Fine Arts*

UNDERGRADUATE PROGRAM

The department offers a selection of courses designed to foster understanding and sensitivity in the visual arts through direct contact with the materials of art or the study of artistic achievement in a variety of areas and historical periods.

The major in fine arts is offered in conjunction with the School of the Worcester Art Museum. All advanced studio courses at the museum are designated below as Fine Arts 199 and are described in the catalog of the School of the Worcester Art Museum. These courses are ordinarily open only to students majoring in fine arts.

The major comprises at least 36 hours of studio work at the museum, plus Fine Arts 11 and six additional hours chosen from one or more of the following areas or courses: European civilization (Classical, French, German), music; History 10, Philosophy 16a (Esthetics), Psychology 11. To meet the requirements for the bachelor's degree, all majors must satisfactorily complete 36 hours outside the following areas or courses: art history and studio art, European civilization, literature (English and foreign), music; History 10, Philosophy 16a, Psychology 11. No more than 60 hours in studio courses may normally be counted, and at least 30 hours must be taken in courses at Clark University.

At the time of application for admission to Clark, every candidate who plans to major in fine arts should submit about a dozen color slides of representative work in as wide a range of media as possible. Slides should be mailed direct to The Clerk of the School of the Worcester Art Museum, 55 Salisbury Street, Worcester, Massachusetts 01608. The deadline for slides is February 1. A similar selection of slides should also be submitted by any undergraduate desiring to enter the program at a later date.

COURSES

F11. INTRODUCTION TO WESTERN ART.

Lectures during the first four weeks deal with general topics such as design principles and technical procedures. The remainder of the course treats significant works of architecture, sculpture, and painting in the light of their times. First semester prerequisite to the second.

Three semester hours each semester. Mr. Cowardin and Miss Graham.

F12b. SURVEY OF WESTERN PAINTING.

General problems of pictorial expression are treated as well as the historical aspects of style. May not be counted in addition to the second semester of Fine Arts 11. Primarily for freshmen and sophomores.

Three semester hours. Mr. Cowardin.

F14a. INTRODUCTION TO THE VISUAL ARTS.

Each of the visual arts is treated in a non-historical way, with special regard for the physical nature of the medium and its expressive potential. May not be counted in addition to the first semester of Fine Arts 11. Primarily for freshmen and sophomores.
Three semester hours. Mr. Cowardin.

15. ART OF THE RENAISSANCE IN ITALY. Not offered 1969-70.

Prerequisite: Fine Arts F11 or F12b, or permission of the instructor. Offered in alternate years.
Three semester hours each semester. Mr. Cowardin.

F17a. AFRICAN AND AFRO-AMERICAN ART.

Discussion of the traditions and styles of the three principal art-producing regions of Africa (the West Coast, the Cameroons, and the Congo), followed by a consideration of Afro-American art from Colonial times to the present.
Three semester hours. Mr. Kane.

18. ART OF THE MODERN WORLD.

Painting, sculpture, and architecture of the nineteenth and twentieth centuries, with special emphasis on the origins and evolution of the modern esthetic attitude and its progress to date.
Three semester hours each semester. Mr. Murphey.

19a. INTRODUCTION TO ORIENTAL ART: THE ANCIENT NEAR EAST AND INDIA.

Prerequisite: at least one semester course in art history. Offered in alternate years.
Three semester hours. Mr. Cowardin.

19b. INTRODUCTION TO ORIENTAL ART: CHINA AND JAPAN.

Prerequisite: at least one semester course in art history. Offered in alternate years.
Three semester hours. Mr. Cowardin.

F100. ART WORKSHOP.

A studio course on campus which puts the student in direct contact with the materials and techniques of producing a work of art. Designed especially for the non-major, its purpose is to intensify artistic awareness through direct work in esthetic problem-solving. Uses a variety of media and approaches. In special circumstances may be counted toward the major in lieu of Fine Arts 111. Six studio hours per week. Indivisible course.
Three semester hours each semester. Mr. Murphey.

F110. BASIC DRAWING.

Given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts. Indivisible course.
Three semester hours each semester. Museum School Staff.

F111. BASIC PAINTING.

Given at the School of the Worcester Art Museum. Open to freshmen who plan to major in fine arts. Indivisible course.
Three semester hours each semester. Mr. Graziani and Staff.

F112b. EYE-TRAINING.

A lecture-workshop course in esthetic visual experience. Based on a purely visual approach, as distinct from matters of content and association, the course progresses systematically through the visual elements (line, shape, color, etc.) and composition relationships. The student exercises his skill of artistic seeing and uses simple media in daily

practice assignments analyzing both art and his environment. A flexible term project involving almost any media in an abstract approach is required. Previous art experience not necessary.
Three semester hours. Mr. Murphey.

199. ADVANCED PAINTING AND DESIGN.
General designation for all courses at the School of the Worcester Art Museum above the elementary level. Ordinarily open only to majors. Consult the department for semester hours. Staff of the Museum School.

Geography

FACULTY

Saul B. Cohen, Ph.D., *Professor of Geography; Department Chairman, Director of the Graduate School of Geography*
Leonard Berry, M.Sc., *Professor of Geography**
James M. Blaut, Ph.D., *Professor of Geography*
Gerald J. Karaska, Ph.D., *Professor of Geography; Editor of Economic Geography*
Robert W. Kates, Ph.D., *Professor of Geography*
Henry J. Warman, Ph.D., *Professor of Geography***
Jeremy Anderson, Ph.D., *Associate Professor of Geography*
Martyn J. Bowden, Ph.D., *Associate Professor of Geography*
William A. Koelsch, Ph.D., *Associate Professor of History and Geography*
David Stea, Ph.D., *Associate Professor of Geography and Psychology*
Roger E. Kasperson, Ph.D., *Assistant Professor of Government and Geography*
George F. McCleary, Jr., Ph.D., *Assistant Professor of Geography*
J. Richard Peet, Ph.D., *Assistant Professor of Geography*
Richard A. Howard, M.A., *Assistant Professor (Affilate) in Computer Sciences*
Asher P. Schick, Ph.D., *Visiting Professor of Geomorphology*

STAFF

Duane D. Baumann, Ph.D., *Post Doctoral Fellow and Research Associate*
Carolyn C. Weiss, M.A., *Research Associate in Cartography*

PROFESSORS EMERITI IN RESIDENCE

Raymond E. Murphy, Ph.D., *Professor of Economic Geography, Emeritus*
Samuel Van Valkenberg, Ph.D., *Professor of Geography, Emeritus*

*On leave of absence, 1969-70.
**On leave of absence, Semester II, 1969-70.

When the Graduate School of Geography was organized in 1921, Clark became the second university in the United States to establish a separate graduate program in geography. At the present time, advanced training is provided leading to the Master's and Doctor's degrees. In addition, the school offers an undergraduate major. Clark is a center for geographical training and research in the United States, and its various offerings provide a maximum of individual attention through student-teacher dialogue.

UNDERGRADUATE PROGRAM

Majors in Geography are required to take four to five year courses in Geography, and at least three to four year courses in related fields. Related fields include all fields listed under Group B (Social Science) except psychology, philosophy and linguistics. Related fields also include geology. A student must take 36 hours outside of the geography courses and related fields defined here to meet the requirements for the bachelor's degree.

Geography 11a, Approaches to Geography, and two of the following 3 courses (11b, Introduction to Physical Geography; 15b, Introduction to Economic Geography; 17b, Introduction to Cultural Geography) are required of majors. These are usually taken in the freshman or sophomore years. The other required courses are Geography 291a, and either Geography 247a, a second-year level language course, or Geography 249a.

An Honors Program in Geography offers opportunity for independent study and research. Information regarding the program can be obtained from the School.

THE GRADUATE SCHOOL OF GEOGRAPHY

As of the preparation of this catalogue material, the graduate program in Geography is being broadly restructured through joint faculty-student efforts. Greater emphasis upon the doctoral programs is contemplated, including the traditional research-oriented Ph.D. and one which seeks to combine elements of research and teacher training. Features of the new program are likely to include greater emphasis on selected concentrations or subfields; a common introductory semester; options to the language requirement; a predoctoral M.A.; and more specialization at the doctoral qualifying examination levels. 1969-70 will be a planning and pilot year for the new program, and it is hoped that some of those who enter at the A.B. level in the fall of 1969 will have the opportunity to choose between the current program and the new one. Students applying for 1970-71 will be expected to operate within the new program's framework and a separate brochure will be mailed to those making inquiry during the winter of 1970. The present program, as outlined below, applies to all current students.

MASTER OF ARTS

Admission: Applicants without prior training in Geography are welcome, but may be required to improve their knowledge of Elements of Geography, Economic Geography, Cartography, and Descriptive Statistics. Courses taken to remedy any deficiencies will not count as part of the regular M.A. program. The Graduate Record Examination scores (Verbal and Quantitative) are required of all students with the exception of those in foreign countries. The GRE Advanced Placement Test in Geography is desirable, but not required.

The M.A. program in Geography is a two-year program. Temporarily, however, those who are eligible for the draft are given, upon arrival at Clark, the option of taking the M.A. degree in three semesters and one summer, providing that the summer be devoted to field research under the supervision of a faculty person, or in residence at Clark taking formal registered courses equivalent to nine credits under the direction of a faculty member. Students are required to take Geography 399a, the Field Methods/Field Camp, and two semester seminars. A total of eight year course equivalents are required, of which one to two may be in related disciplines, including reading courses. A student may elect a single or double thesis course as part of his program. For those M.A. candidates interested in Geography and its Pre-College teaching, a single semester course in Internship Teaching in the Secondary School or its equivalent is recommended.

Examinations: Comprehensive examinations for the M.A. cover five fields, normally: (1) philosophy and methodology of geography, (2) a physical geography field, (3) a regional geography field, and (4) and (5) two other systematic fields approved by the staff. The examination for these five fields shall be in writing and extend for five hours. In addition, a 40-minute oral performance on one of these five fields is taken, the field to be the major one in which the thesis is written. The comprehensive examinations are offered at least twice during the academic year, at the end of September and at the end of February, and if sufficient demand warrants, at the end of May. For those who entered in the fall of 1968 and in 1969, an option which includes comprehensive examinations in three fields is available.

Thesis: By March 15 of the year in which the candidate expects to receive his degree, he must submit an acceptable draft of the thesis to his adviser; this is reviewed by two staff members before circulation among the rest of the staff for approval. After all revisions have been made and the draft approved by the adviser, the thesis is typed in final form. University requirements concerning the thesis are found in the section on the Graduate School.

DOCTOR OF PHILOSOPHY

Entrance Requirements: Normally, to enter the Ph.D. program, a student must have completed all requirements for a Master's degree in geography at Clark or at another institution. Where there are obvious deficiencies, all or part of the M.A. comprehensive examination and a paper of thesis length and quality may be required of those entering with M.A.'s from other institutions. Deficiencies which are exposed as a result of this examination are expected to be remedied by course and written work taken during the first year of doctoral residence.

Program Requirements: A doctoral candidate must fulfill a two-year residence requirement if entering with an M.A. from another institution and a one-year residence requirement if he has fulfilled the Clark two-year M.A. requirement. The candidate normally elects four courses each semester, including a minimum of one seminar per semester. The candidate must pass an examination in French, German, Russian, or Spanish, preferably in his first year at Clark. The department may set an additional language or other requirement as the student's field or research may demand. The language and alternative requirements must be fulfilled before the preliminary examination is scheduled. For those entering in 1969, options to the traditional language requirement are planned.

Preliminary Examinations: The candidate offers three fields for his preliminary examination. The major is the field in which he expects to write his dissertation. The other two fields are chosen from those which have particular bearing on the major field and with the written approval of the department. The candidate's grasp of the philosophy and nature of geography is also examined. The examination extends for approximately two and one half hours.

Dissertation and Defense: Circulation of the dissertation topic and outline is initiated by the student through his major advisor to every member of the staff and any time after the first semester of residence. Following staff approval, the student may be called before the staff for an oral proposal review. A student who has successfully passed his preliminary Ph.D. examination must file for candidacy within one year after his dissertation topic has been approved and accepted.

By February 1 of the year in which the candidate expects to receive his degree, he must submit an acceptable dissertation draft to his major professor. Upon approval by the major advisor, three copies of the draft must be made available for review by a second reader and two reviewers. It is then circulated among other staff members for their comments, and a date is set for its defense. No dissertation defenses are normally scheduled after April 1. If the defense is adequate, and after any necessary minor revisions have been approved by the major professor, the dissertation is typed in final form. Two carbon copies must be delivered to the departmental office at least four weeks before the date of commencement. This is in addition to the ribbon copy that must be delivered to the Registrar.

Research or Teaching Prerequisite: Some teaching or research experience at Clark (or its equivalent at another institution) is prerequisite to the Doctor's degree.

DISTINCTIVE FEATURES AND SPECIALIZATION

Graduate students are assigned carrels in the Geography Workroom. The Workroom and other sections of the Geography Building contain specialized equipment and research facilities for the use of students and staff. The Libbey Library of the Geography Building serves for general conferences and the reception of visiting lecturers. Workroom fees totaling $10 per semester, are payable on November 1 and March 1.

A feature of the Graduate School of Geography is a field camp program which includes studies of land utilization, geomorphology, resources and urban geography, with special training in mapping, sampling and other field techniques. Cost of the Field Camp is $100; the camp is generally held in Puerto Rico from the second through fourth week of January.

Cross-disciplinary training, as evinced by the three joint appointments held by geography faculty with other departments; the clustering of faculty research and teaching interests in several areas having to do with the man-environment system; and specialization in urban-economic, environmental management, environmental behaviorial, political, historical and cultural geography characterize the school currently.

PUBLICATIONS

A professional magazine, *Economic Geography*, is edited by a faculty member. Started at Clark University in 1925, it is the only journal published in English that specializes in economic and urban geography. The magazine has a world-wide distribution with a total circulation of 4,700.

The graduate students, through the years, have maintained the Clark University Geographical Society. The annual publication, *The Monadnock,* keeps School of Geography alumni in touch with each other and with news and scholarly activities in the School.

COURSES

11a. APPROACHES TO GEOGRAPHY.

A general framework for understanding geography for those with curiosity about the field. History and philosophy of the field and the various approaches to geographic research that are employed in its major sub-fields, the latter to be treated partly in the form of case studies. For freshmen and sophomores; juniors and seniors admitted with consent of instructor.
Four semester hours. Mr. Bowden, Coordinator, and Staff.

11b. INTRODUCTION TO PHYSICAL GEOGRAPHY.

Physical geography, with emphasis on the principles of physiography and climatology. Open to freshmen and sophomores; juniors and seniors admitted with consent of instructor.
Three semester hours. Mr. Schick.

15b. INTRODUCTION TO ECONOMIC GEOGRAPHY.

Introduction to major areal differences in economic activity in the primary, secondary and tertiary sectors. For freshmen and sophomores; juniors and seniors admitted by consent of the instructor.
Three semester hours. Mr. Anderson.

17b. INTRODUCTION TO CULTURAL GEOGRAPHY.

Study of the effect of culture on the earth, and the varying uses of natural resources at different cultural levels. For freshmen and sophomores; juniors and seniors admitted by consent of instructor.
Three semester hours. Mr. Blaut.

19b. MAP APPRECIATION AND READING. Offered Semester 1.

The philosophy and history of maps and mapping; types of maps and elements of maps. A general liberal arts approach to maps and cartography.
Three semester hours. Mr. McCleary.

114. PRINCIPLES OF GEOMORPHOLOGY.

The analysis and distribution of physical features in the geographic landscape. Prerequisite: Geography 11b or Geology 12, or equivalent.
Three semester hours each semester. Mr. Schick.

120a. ELEMENTS OF PHYSICAL CLIMATOLOGY. Not offered, 1969-70.

A survey of the elements of climate, atmospheric circulation and the exchange of heat and moisture between the earth and its atmosphere. Prerequisite: Geography 11b or consent of the instructor.
Three semester hours.

131b. THE GEOGRAPHY OF INTERNATIONAL POLITICS.

Concentrates on theories of geopolitical equilibrium and upon the impress of politics upon landscape in unique regional settings. Problem-oriented, within the context of a world regional survey. Prerequisite: Geography 11a or Government 14.
Three semester hours. Mr. Cohen and Mr. Kasperson.

150b. CONFLICT AND COMPLEXITY: A COMPUTER APPROACH TO NATURAL RESOURCE PLANNING.

A computer simulation of land and water resource planning. Students assume the roles of technical experts confronting complexity in natural resource ecology, conflicting planning objectives and social values, and an uncertain environment and technology.

Four semester hours. Mr. Howard, Mr. Kasperson, and Mr. Kates.

160a. INDUSTRIAL GEOGRAPHY.

An introduction to location theory, geography of industrial invention and innovation, the industrial revolution, effect of changing technology on industrial location, interregional competition in manufacturing.

Three semester hours. Mr. Peet.

161b. GEOGRAPHY OF AMERICAN POVERTY.

Emergence and structure of regions of poverty in America; urban ghetto formation; governmental response through regional planning; planning under socialism.

Three semester hours. Mr. Peet.

188b. EAST AFRICA: PROBLEMS OF A DEVELOPING REGION.

An interdisciplinary approach designed to convey to the student a sense of East Africa place and people and a concern with their needs and problems as they pursue difficult and differing paths of development.

Two semester hours. Mr. Kates and Mr. Wisner.

200a. GEOGRAPHY IN EDUCATION.

Designed for students intending to teach geography as a separate subject or in the social studies; for supervisory personnel and for teachers in service. Subject-matter course treats various geographic factors and concepts separately but in their sequences and inter-relationships. References made to and work experience in techniques and methodology. Signature of instructor required.

Three semester hours. Mr. Warman.

202. HONORS.

Independent study, reading and research. Open only to honors undergraduates.

Three to six semester hours. Staff.

207. BEHAVIORAL SCIENCE AND THE ENVIRONMENT.

Human and animal social behavior related to aspects of the physical environment. Social interaction, territory, density, movement, and migration. Introduction to environmental design; problem formulation, decision processes, simulation. (Offered jointly with Psychology Department). Prerequisite: permission of instructor. Limited to 15 students.

Three semester hours each semester. Mr. Stea.

214. REGIONAL PHYSIOGRAPHY.

The regional interpretation of major land forms and their inter-relationships with climate, vegetation and soils. Prerequisite Geography 114a or equivalent.

Three semester hours. Mr. Schick.

221b. REGIONAL CLIMATOLOGY. Not offered, 1969-70.
World classification and description of climates. The various classifications of climate, especially as related to vegetation. Prerequisite: Geography 120a or consent of the instructor.
Three semester hours.

230. POLITICAL GEOGRAPHY AND ITS SPATIAL CONSEQUENCES.
Theory and methodology in Political Geography. Political processes and landscape interaction, at varying levels of the political hierarchy (national, urban, international). Attention to such topics as equilibrium, systems, decision-making, political action space. Open to juniors and seniors. Prerequisite: Geography 11a or Government 14.
Four semester hours each semester. Mr. Cohen, Coordinator, and Mr. Kasperson.

240a. AGRICULTURAL SYSTEMS.
Field study of Worcester County farms will be used to acquaint students with the problems of agricultural activity and the major elements of farm systems. The latter portion of the course will examine the salient characteristics of other selected contemporary agricultural systems in the world. Prerequisite: Geography 11a.
Four semester hours. Mr. Anderson.

245a. COMPARATIVE STUDIES IN HISTORY AND GEOGRAPHY.
Comparative analysis of selected literature of historical geography and related fields of history with special attention to methodological differences. Offered jointly with History Department.
Four semester hours. Mr. Koelsch.

245b. HISTORICAL GEOGRAPHY OF EASTERN U. S. A.
Studies in settlement and resource utilization on the Eastern Seaboard before 1860.
Four semester hours. Mr. Koelsch and Mr. Peet.

247. QUANTITATIVE METHODS IN GEOGRAPHY.
Probability functions and the role of statistical inference in geographical research; descriptive statistics through simple correlation. Multivariate analysis including analysis of variance; miscellaneous spatial statistics (including nearest neighbor, graph and game theories, and other analyses).
Three hours each semester. Mr. Karaska.

249a. COMPUTER PROGRAMMING IN GEOGRAPHY.
Fundamentals of Fortran IV programming. Introduction to computer-oriented information, storage, and retrieval systems, and computer-generated maps. Open to majors and graduate students only.
Four semester hours. Mr. Howard.

260. GEOGRAPHY OF MANUFACTURING AND ENERGY. Not offered, 1969-70.
A description and analysis of the spatial distributions of manufacturing and energy resource exploitation in the world, including an introduction to industrial location theory.
Three semester hours each semester. Mr. Peet.

261a. URBAN GEOGRAPHY.

A systematic study of external and internal spatial relationships of cities and city systems. Urbanization viewed as a process in spatial organization involving mutual interrelations among decision units.

Three semester hours. Mr. Karaska.

269b. ETHNO-GEOGRAPHY.

Study of the interdisciplinary field embracing parts of cultural geography and cultural anthropology. Emphasis is placed on problems of theory in culture history, primitive economics, and technological change.

Three semester hours. Mr. Blaut.

272a. RELATIONS OF CULTURE AND ENVIRONMENT.

An historical approach to study of the interrelations of culture and nature; geochronology; culture change and migrations; agricultural origins and diffusion of plants and animals; culture and environmental perception. Emphasis on sources in the study of particular problems in cultural geography. Open to juniors and seniors. Geography F11a for F17b or equivalent required, or by permission of instructor.

Four semester hours. Mr. Bowden.

273b. SETTLEMENT GEOGRAPHY.

An historical cultural approach to study of rural and urban settlement patterns; origin and development of field systems and settlement types in Europe and North America; models of settlement; the internal structure and external relations of urban and rural places. Open to juniors and seniors. Geography 11a or 17b or 272a or equivalent required, or by permission of instructor.

Four semester hours. Mr. Bowden.

274b. AGRICULTURAL DEVELOPMENT IN UNDERDEVELOPED AREAS.

One semester hour. Mr. Blaut.

284a. REGIONAL GEOGRAPHY OF SOUTH AMERICA.

Three semester hours. Mr. Warman.

291a. ELEMENTS OF CARTOGRAPHY.

Principles of cartography, including scale and map projections; compilation, generalization, symbolization and the fundamentals of design. Two hour weekly laboratory. Required of all majors. Open to sophomores, majors or those who have completed Geography 19b. Fulfills the departmental requirements for M.A. candidates.

Four semester hours. Mr. McCleary and Miss Weiss.

291b. MAP ANALYSIS AND USE.

Not offered, 1969-70.

Methods and procedures for the analysis of areal distributions, particularly those expressed in cartographic form. Prerequisite: Geography 291a; a basic knowledge of statistical methods is required.

Three semester hours.

292b. MAP DESIGN.

Theory and practice in the development of the design of maps. The map is examined as a medium of communication, as a perceived object, and as an information system. Prerequisite: Geography 291a.

Three semester hours. Mr. McCleary.

294b. CARTOGRAPHIC TECHNIQUES. Not offered, 1969-70.
Methods of map preparation and reproduction including computerized mapping programs. Prerequisite: Geography 291a.

Three semester hours.

296b. THE MAP AS AN EDUCATIONAL MEDIUM. Not offered, 1969-70.
The fundamentals of cartography and mapping; discussion of map design for classroom use in elementary and secondary schools. Although primarily emphasis is on concepts and theory, much attention will be given to the technical facets of this activity.

Four semester hours.

310. ENVIRONMENTAL PROCESSES MEASUREMENT AND ASSESSMENT. Not offered, 1969-70.
A study of basic environomental processes leading to an analysis of the measurement and assessment of environmental systems. Field studies concentrate on the problems of environmental assessment with alternative sites provided for developing two developed areas. Mr. Kates.

350. RESOURCE MANAGEMENT: THEORIES, METHODS AND MODELS.
Economic, cultural, ecological and political decision theories of resource use. Methods of resource measurement and projection. Computer decision models of forest and water management and system design. Mr. Kates, Coordinator, and Staff.

351a. RESOURCE MANAGEMENT: PROBLEMS OF DEVELOPED AREAS.
Selected managerial problems emphasizing problems of environmental quality and institutional choice and decision making. Mr. Bauman, Coordinator, and Staff.

352b. RESOURCE MANAGEMENT: PROBLEMS OF DEVELOPING AREAS.
Selected managerial problems emphasizing problems of resource assessment, agricultural development and water resource planning. Mr. Kates, Coordinator, and Staff.

360a. THEORY OF ECONOMIC GEOGRAPHY.
Construction of theory in geography; agricultural and industrial location theories; interregional trade theory; behavioral variation on classical location theory. Mr. Peet.

390a. REMOTE SENSING SYSTEMS AND IMAGE INTERPRETATION.
Examination of the means of acquisition, the interpretation, and the utilization of different forms of remote sensing imagery. Emphasis will be placed upon air photo interpretation; attention will also be given to use of non-conventional imagery (infrared, radar, microwave and multispectral), data sampling and processing. Limited to fifteen students. Permission required.

Three semester hours. Mr. Anderson and Miss Weiss.

399a. FIELD RESEARCH METHODS IN GEOGRAPHY AND FIELD CAMP.
Theory and techniques of field (observational and survey) research; experimental design. Field camp in January to be held in Puerto Rico; fee $80-$100. Required of all graduate students who have not had equivalent. One or both components may be waived with consent of instructors.

Four semester hours (three credits for Field Research Methods; one credit for Field Camp). Mr. Anderson et al.

SEMINARS

30a. SEMINAR IN POPULATION GEOGRAPHY.

Three semester hours. Mr. Warman.

304. SOCIAL SCIENCES IN THE CITY.

Offered jointly with the History Department. Mr. Stanton.

308a. SEMINAR ON DEVELOPMENT OF SPATIAL COGNITION.

An examination of cognitive maps and orientation systems in light of new data from psychological and geographical studies of the perception of large environments. Offered jointly with School of Psychology. Prerequisite: permission of instructor. Limited to 15 students. Mr. Stea.

315a. SEMINAR IN GEOMORPHOLOGY.

Three semester hours. Mr. Schick.

330. SEMINAR IN RESEARCH AND TEACHING PARAMETERS IN POLITICAL GEOGRAPHY.

First semester involves a research topic to be handled by one or more teams. Research will concentrate on theory formulation and testing. Second semester includes two levels of responsibility: (1) the design of a series of lectures to be woven into the lecture framework of G230, the object being to translate the research results of the first semester into a teaching situation, and (2) the acceptance of responsibility for supplementary undergraduate tutorial sessions in connection with G131, the sessions to be organized around the background and interests of seminar participants.

Three semester hours each semester. Mr. Cohen and Mr. Kasperson.

340b. SEMINAR ON AGRICULTURAL GEOGRAPHY.

The focus will be on the application of systems analysis to agricultural systems. Modes of analysis will be reviewed and applied to specific systems.

Three semester hours. Mr. Anderson.

353b. RESOURCE MANAGEMENT: GROUP RESEARCH SEMINAR.

Cooperative research on selected topics with emphasis on the planning and organization of geographical research effort for solving applied managerial problems.

Mr. Bauman, Coordinator, and Staff.

355a. NATURAL HAZARDS RESEARCH SEMINAR.

A specialized research seminar on human adjustment to natural hazards. The environmental behavior of *homo in extremis* is examined for its theoretical implications for studies of uncertainty, crises and technological change and for its contribution towards reducing the social cost of hazard adjustment.

Three semester hours. Mr. Kates.

356b. SEMINAR ON HISTORICAL GEOSOPHY.

An historical approach to the study of perception of regions, space and territory, landscape and physical environment with special emphasis on New England and the American West 1700-1970. Emphasis will be on sources and techniques.

Four semester hours. Mr. Bowden.

362a. SEMINAR IN NETWORKS AND SETTLEMENT.

Critical appraisal of studies dealing with development of patterns of urban and rural centers; the dynamics of central place and other theories in areas of orthogenetic and heterogenetic transformation. Prerequisite Geography 273b or equivalent or by permission of instructor. Limited to ten students. Mr. Bowden.

365a. SEMINAR IN GEOGRAPHY OF POVERTY.
The seminar will focus on the geography of poverty in the United States. Graduate students will be expected to deliver at least one lecture to the undergraduate course on the Geography of American Poverty in the second semester.
Three semester hours. Mr. Peet.

366b. SEMINAR IN URBAN GEOGRAPHY.
A review of the regional science literature leading to problems on models and techniques of metropolitan area analysis. Mr. Karaska.

372. SEMINAR IN THE HISTORICAL GEOGRAPHY OF NEW ENGLAND. Not offered, 1969-70.
Mr. Koelsch.

364b. NETWORK OF CITIES. Not offered, 1969-70.
The historical role of transportation in the process of regional economic growth.
Three semester hours.

380a. SEMINAR IN PHILOSOPHY OF GEOGRAPHY. Not offered, 1969-70.
Three semester hours.

391a. SEMINAR IN CARTOGRAPHY.
Three semester hours. Mr. McCleary.

395b. SEMINAR IN ENVIRONMENTAL LEARNING IN CHILDREN.
Deals with current research in place perception.
Two semester hours. Mr. Blaut, Coordinator, and Staff.

READING, RESEARCH AND THESIS COURSES

300. READING COURSE.
Prerequisite: consent of the instructor.

301. RESEARCH IN GEOGRAPHY.
Prerequisite: consent of the instructor.

302. THESIS RESEARCH.
Single or double course. Prerequisite: consent of the staff.

303. TEACHING INTERNSHIP IN GEOGRAPHY.
Prerequisite: consent of the instructor. Strongly recommended for concentration in Economic Geography.

Economics 277. REGIONAL ECONOMICS.
Six semester hours. Mr. Puffer.

Economics 290a. ECONOMICS.
Three semester hours. Mr. Puffer.

Economics 302b. ECONOMIC THEORY: MACRO PROBLEMS.
Three semester hours. Mr. Puffer.
Strongly recommended for concentration in Political Geography.

Government 201b. POLITICAL BEHAVIOR.
Four semester hours. Mr. Kasperson.

Government 230b. URBAN GOVERNMENT AND POLITICS.
Four semester hours. Mr. Kasperson.

Geology

DEPARTMENT FACULTY

Richard P. Hight, Ph.D., *Assistant Professor (Affiliate) of Geology*
Robert E. Lingner, M.A., *Assistant Professor (Affiliate) of Geology*
Joseph A. Sinnott, M.S., *Lecturer in Geology*

UNDERGRADUATE PROGRAM

Courses are offerd in geology to supplement major work in related areas and to provide an introduction to the earth sciences for interested students. The undergraduate major program has been discontinued for students entering Clark after January 1967.

COURSES

F11. GENERAL GEOLOGY.

Introduction to geology, origin of the earth, its development through time and the succession of plant and animal life. First semester deals with common rocks, their structure, origin and occurrence; geological activities of the air, streams and sea; nature of glaciers, volcanoes and earthquakes, and age of the earth. Laboratory work consists of rock and mineral identification and map interpretation. Second semester deals with the origin of continents and ocean basins, their development through time; the geologic history of North America; and evolution of life through geologic time. Laboratory work consists of geologic map interpretation and fossil identification. Occasional field trips. Indivisible course. Laboratory.

Four semester hours each semester. Mr. Lingner.

Geol. 111. INTRODUCTORY MINERALOGY.

Study of crystallographic, physical and chemical properties of common minerals. Field trip, laboratory. First semester is a prerequisite for the second.

Four semester hours each semester. Mr. Hight.

112a. OPTICAL MINERALOGY.

Not offered, 1969-70.

Principles of optics as applied to the identification of minerals with the polarizing microscope. Laboratory.

Four semester hours. Mr. Hight.

114b. PETROGRAPHY.

Not offered, 1969-70.

The classification, description and thin section study of the common rock groups. Laboratory.

Four semester hours. Mr. Hight.

151b. INTRODUCTORY FIELD METHODS.

A survey course in field geology. Includes introductory methods in plane table mapping, air photo interpretation, and topographic mapping. Numerous field excursions. Prerequisite: permission of instructor.

Three semester hours. Mr. Sinnott.

GEOGRAPHY: course descriptions are listed in the section, "Geography."

114a. PRINCIPLES OF GEOMORPHOLOGY.

214b. REGIONAL PHYSIOGRAPHY.

CIVIL ENGINEERING: course descriptions are listed in the section, "Department of Civil Engineering" in the catalog of Worcester Polytechnic Institute.

CE. 540. ENGINEERING GEOLOGY. Mr. Sage.

CE. 541. SEDIMENTATION. Mr. Sage.

German

DEPARTMENT FACULTY

Walter Schatzberg, Ph.D., *Associate Professor of German, Department Chairman*
Karl J. R. Arndt, Ph.D., *Professor of German*
James E. Edwards, A.M., *Associate Professor of German*
Alfred Anderau, Ph.D., *Assistant Professor of German*

UNDERGRADUATE PROGRAM

The Department of German intends primarily to give its students a liberal and humanistic education by presenting and interpreting the language, life, and literature of German-speaking peoples. Students interested in German as their major should consult the department chairman; for honors programs, Mr. Edwards. The Department requires a regular class attendance in all courses.

Majors in German are required to take six hours of German 154 and 15-24 hours of advanced German literature courses beyond German 14. The German major must also select a minimum of 20 hours in related fields including History 10 or 215, Philosophy and language and literature courses in other departments. In addition, at least 36 semester hours of a major's program must be selected from courses other than those listed above and Group C-D courses.

FIRST YEAR COURSES

F11. INTRODUCTORY GERMAN.

A comprehensive introduction to the written as well as the spoken language. The course aims at acquisition of all four skills: reading, writing, speaking and understanding. The language laboratory will be used to assist in reaching these goals. Indivisible course.

Three semester hours each semester. Mr. Schatzberg, Mr. Edwards and Mr. Anderau.

SECOND YEAR COURSES

F12. INTERMEDIATE GERMAN.

Review of German grammar. Study of expository and narrative prose. Aural and oral training with the assistance of the language laboratory. Prerequisite: German 11 or advanced placement.

Three semester hours each semester. Mr. Schatzberg, Mr. Edwards and Mr. Anderau.

F14. INTRODUCTION TO GERMAN LITERATURE (Intermediate course).
Principally a reading course for students who wish to gain as rapidly as possible a general knowledge of German Literature at the intermediate level. Reading and interpretation of the works of representative German writers. Prerequisite: German 11 or two years of high school German and consent of instructor.
Three semester hours each semester. Mr. Arndt.

ADVANCED COURSES

130. MODERN GERMAN PROSE. Not offered, 1969-70.
Selected works by Mann, Hesse, Kafka, Dürrenmatt. Discussions, oral and written reports in German. Prerequisite: German 12.
Three semester hours each semester. Mr. Schatzberg.

132. ADVANCED COMPOSITION AND LITERATURE.
Intensive training in the aural, oral, and written use of the language. Required of majors. Prerequisite: oral and written examination.
Three semester hours each semester. Mr. Anderau.

134. GERMAN LITERATURE SINCE GOETHE. Not offered, 1969-70.
Reading and interpretation of representative works of German literature since Goethe. Prerequisite: German 12 or advanced placement.
Three semester hours each semester. Mr. Edwards.

136a. GERMAN LYRIC POETRY. Not offered, 1969-70.
German lyric poetry from the Reformation to the present. Prerequisite: German 12.
Three semester hours. Mr. Arndt.

138. CONTEMPORARY GERMAN DRAMA. Not offered, 1969-70.
Reading and interpretation of outstanding works of contemporary German drama, including plays of Dürrenmatt, Frisch, Hochwälder, Hochhuth, and Peter Weiss. Prerequisite: German 12.
Three semester hours each semester. Mr. Edwards.

140a. GERMAN ENLIGHTENMENT. Not offered, 1969-70.
Selected readings from the works of Wolff, Gottsched, Brockes, Haller and Lessing. Several Storm and Stress authors will also be considered toward the end of the semester. Prerequisite: German 12.
Three semester hours. Mr. Schatzberg.

142b. GERMAN ROMANTICISM.
A study of selected works by the Schlegel Brothers, Novalis, Tieck, Brentano, Chamisso, Fouque, E.T.A. Hoffmann, Eichendorff and Heine. Prerequisite: German 12.
Three semester hours. Mr. Schatzberg.

154. HISTORY OF GERMAN LITERATURE.
Survey of German literature from earliest times to the present. Given in German. Prerequisite: German 132 or consent of the instructor.
Three semester hours each semester. Mr. Edwards.

162a. GOETHE'S FAUST. **Not offered, 1969-70.**
Reading and discussion of Goethe's *Faust I and II*. Given in German. Prerequisite: German 132 or consent of the instructor.
Three semester hours. Mr. Arndt.

165b. FROM EXPRESSIONISM TO CATASTROPHE. **Not offered, 1969-70.**
German literature from World War I to World War II. Given in German. Prerequisite: German 132 or consent of the instructor.
Three semester hours. Mr. Arndt.

166. GERMAN DRAMA SINCE KLEIST.
Given in German.
Three semester hours each semester. Mr. Edwards.

190b. GOETHE. **Not offered, 1969-70.**
An introduction to the life and work of Goethe, excepting his Faust. Prerequisite: consent of the instructor.
Three semester hours. Mr. Arndt.

192a. SCHILLER.
An introduction to the life and work of Schiller. Prerequisite: consent of the instructor.
Three semester hours. Mr. Arndt.

196. INDEPENDENT READING AND RESEARCH IN GERMAN LITERATURE.
Independent course of study limited to highly qualified seniors. Reading and research will be in German and the program arranged individually. Prerequisite: consent of the instructor.
Three semester hours each semester. Mr. Arndt.

COURSES GIVEN IN ENGLISH

F16. FRESHMAN COLLOQUIUM ON MODERN GERMAN LITERATURE.
The purpose of this course is to examine some of the dominant themes in modern German literature and to acquire skill in interpreting literary works. Enrollment is limited to assure every student the opportunity for active participation. Subject for fall, 1969: Selected works of Rilke, Mann, Hesse, Kafka, Grass. Given in English.
Three semester hours. Mr. Schatzberg.

141. GERMANIC CIVILIZATION. **Not offered, 1969-70.**
Illustrated lecture course on the literature, history and fine arts of German lands from the Holy Roman Empire to the present day, with emphasis on the Reformation, Age of Enlightenment and the Classical Period. Given in English.
Three semester hours each semester. Mr. Edwards.

197b. THE FAUST THEME IN LITERATURE. **Not offered, 1969-70.**
A study of the fortunes of Faust and the Faustian spirit as treated in European and American literature from the Reformation to Hiroshima. Given in English. Prerequisite: consent of the instructor.
Three semester hours. Mr. Arndt.

198. SEMINAR. Not offered, 1969-70.
Principally for majors but open to other qualified upperclassmen. In 1968-69 the seminar was given in English by the entire staff, with studies on Mann, Kafka, Brecht and Rilke. Prerequisite: consent of the instructor.

Three semester hours. Staff.

199. THE GERMAN CONTRIBUTION TO WORLD LITERATURE.
Goethe in 1827: "The epoch of world literature is here and everyone must now work to hasten the development of this epoch." Reading, analysis and discussion of translated works from various periods of German literature, starting with the *Song of the Nibelungs* and ending with representative works of the currently dominant "Group 1947." Given in English. Prerequisite: consent of the instructor.

Three semester hours each semester. Mr. Arndt.

Government and International Relations

DEPARTMENT FACULTY

Morris H. Cohen, Ph.D., *Professor of Government, Department Chairman*

Sherman S. Hayden, Ph.D., *Professor of International Relations**

Daniel R. Kilty, Ph.D., *Associate Professor (visiting) of Government and Business Administration*

Knud Rasmussen, Ph.D., *Associate Professor of Government*

Roger E. Kasperson, Ph.D., *Assistant Professor of Government and Geography*

Robert J. Smith, M.A., *Lecturer in International Relations*

*On leave of absence, second semester, 1969-70.

UNDERGRADUATE PROGRAM

Majors in government must take Government 159a, 15, and 205a and b, preferably in the freshman, sophomore and junior years respectively, and are expected further to take four additional hours in American government and politics, twelve other hours in government, and twelve hours selected from economics, geography, history, psychology and sociology.

Majors in international relations should take Government 159b and History 10 in the freshman year and Economics 11 and Government 14 before the end of the sophomore year. Also required are Government 240a or 242b, 241, and twelve hours selected from economics, geography, history, and from other government courses.

Thirty-six hours of any major program must be selected from fields *other than* those listed in the two paragraphs preceding. Proficiency in a foreign language at the level normally attained by two years study is required in an international relations major and strongly recommended of the government major (mathematics or statistics may, however, be substituted).

GRADUATE PROGRAM

Master of Arts: A thirty-hour program, including a master's thesis, is available in either government or international relations. A complete draft of the thesis must be received promptly after the spring recess if the candidate is to obtain the degree that June. An oral examination is also required. A candidate is expected to spend one year in residence for this degree.

Doctor of Philosophy: The Doctorate in Government is not offered at the present time. A doctorate in International Relations may be acquired, in cooperation with the history department. At least one year's residence is absolutely required. Every doctoral program consists of four selected fields, one or two for written examination, the rest for oral. These examinations together constitute the "preliminaries".

Before completing the preliminaries, examinations in French and German must be passed. Another language may be substituted, with permission, for one of these, or a second examination in a single language designed to demonstrate full research competence. Competence in statistics may be substituted for one language, with permission.

The doctoral dissertation, in a designated special field, must be submitted in complete first draft no later than March 1 of the year wherein the degree is expected. The final examination covers both the dissertation and the special field.

Teaching experience at Clark or any teaching accepted as equivalent, is prerequisite to this degree.

COURSES

14. INTERNATIONAL RELATIONS.

A survey of world politics since 1918, with emphasis on the shifting patterns of power and the rise of new nations and revolutionary doctrines. The second semester deals mainly with events since World War II.

Three semester hours each semester.

First semester, Mr. Hayden; Second semester, Mr. Smith.

15. INTRODUCTION TO AMERICAN GOVERNMENT.

A short survey of the theories of the origins and purposes of the state is followed by a study of American government with emphasis on contemporary problems of the federal government.

Three semester hours each semester. Mr. Cohen.

159a. INTRODUCTION TO POLITICAL SCIENCE.

A survey of the components of political science with discussion of the development of the discipline. Some emphasis will be placed upon the systematic analytic study of modern political systems.

Three semester hours. Mr. Rasmussen.

201b. POLITICAL BEHAVIOR.

Causes and forms of political behavior, their relation to the functioning of the political system: decision-making, political attitudes and participation, patterns of electoral, legislative, and administrative behavior.

Four semester hours. Mr. Kasperson.

205a. ROOTS OF POLITICAL THOUGHT.

A study of the development of Western political thought from the Socratic philosophies to Hobbes. The study will deal with the evolution of political thought in the context of influential, social, political, and economic forces.

Four semester hours. Mr. Rasmussen.

205b. RECENT POLITICAL THOUGHT.

A study of modern political theory as developed in the context of the social, political, and economic forces which have shaped Western thought since the French Revolution.

Four semester hours. Mr. Rasmussen.

230a. URBAN GOVERNMENT AND POLITICS.

Organization and process in American urban society; urban power-structure, policy making, and selected case stories.

Four semester hours. Mr. Kasperson.

240a. SEMINAR IN INTERNATIONAL RELATIONS.

Basic ideas and their application to current problems. This or 242b required for international relations majors. Open to a limited number of non-majors at the discretion of the instructor.

Four semester hours. Mr. Hayden.

241. INTERNATIONAL LAW AND ORGANIZATION. Not offered 1969-70.

First semester deals with the historic principles of international law and their application in the modern world. Second semester deals with the institutions created to handle problems of commerce, welfare and collective security on an international basis. Offered in alternate years.

Four semester hours each semester. Mr. Hayden.

242b. INTERNATIONAL POLITICS.

A study of contemporary trends in international politics. Some emphasis will be placed on a systematic study of the national versus the international community. This course or 240b required for international relations majors.

Four semester hours. Mr. Rasmussen.

25b. COMPARATIVE GOVERNMENT. Not offered, 1969-70.

A comparative study of the major West European political systems. Some study of the political historic development will lay the basis for comparison of modern functions of government.

Four semester hours. Mr. Rasmussen.

250. SEMINAR IN 20TH CENTURY POLITICAL THEORY.

A study of normative and analytic theory. Some emphasis will be placed on the individual in a modern mass society and the impact the development of the mass society has had upon theory. Prerequisite: Roots of Political Thought and Recent Political Thought or the permission of the instructor.

Four semester hours. Mr. Rasmussen.

251a. AMERICAN POLITICAL PARTIES. Not offered, 1969-70.
American party organizations, pressure groups and the electorate in American politics, with emphasis on current problems and trends in the field. Offered in alternate years.
Four semester hours. Mr. Cohen.

252a. PUBLIC ADMINISTRATION.
Development of modern management techniques in American government, especially the federal; theory and practice of organizing and operating such functions as defense, foreign affairs, finance, health, education, welfare, transportation and housing.
Four semester hours. Mr. Kilty.

254. AMERICAN CONSTITUTIONAL LAW.
A study of the major developments and problems in American constitutional law, with emphasis on the case approach, and, especially in the second semester on contemporary cases and problems in civil liberties.
Four semester hours each semester. Mr. Cohen.

255b. THE LEGISLATIVE PROCESS. Not offered, 1969-70.
A study of policy-making in Congress, involving problems of legislative organization and procedure, leadership and presidential-legislative relationships, examined primarily by the case method and by individual research on particular pieces of recent legislation.
Four semester hours. Mr. Cohen.

351a. PROBLEMS IN AMERICAN GOVERNMENT AND POLITICS.
Four semester hours. Mr. Cohen.

GRADUATE READING AND THESIS COURSES

34. READING } IN INTERNATIONAL RELATIONS. Mr. Hayden and Mr. Rasmussen.
340. THESIS }

35. READING } IN GOVERNMENT AND POLITICS.
350. THESIS }
Mr. Cohen, Mr. Kasperson, and Mr. Rasmussen.

History

DEPARTMENT FACULTY

Daniel R. Borg, Ph.D., *Associate Professor of European History, Department Chairman*
Thomas C. Barrow, Ph.D., *Professor of American History**
George A. Billias, Ph.D., *Professor of American History*
Robert F. Campbell, Ph.D., *Professor of American History***
Tamara K. Hareven, Ph.D., *Associate Professor of American History*
William A. Koelsch, Ph.D., *Associate Professor of American History and Geography*
Paul Lucas, Ph.D., *Associate Professor of European History***
Richard B. Ford, Ph.D., *Assistant Professor of Comparative History*
David W. Savage, Ph.D., *Assistant Professor of English History*
David W. Brubaker, M.A., *Lecturer in French History*
John O. Iatrides, Ph.D., *Lecturer in Russian History*
Marcus A. McCorison, M.S., *Lecturer in American History, Director of the American Antiquarian Society*

* On leave of absence, second semester, 1969-70.

** On leave of absence, first semester, 1969-70.

UNDERGRADUATE PROGRAM

A student majoring in history normally elects History 10 plus 32 additional credit hours in history. Students may be excused from History 10 if they have achieved a high level of performance on the Advanced Placement examination or demonstrate an advanced knowledge of modern Western history. Of the advanced history courses, at least eight hours must be in American and at least eight hours in non-American history. An additional twelve hours must be taken in the social sciences.

At least thirty-six hours of a major's degree program must be selected in fields *other than* economics, geography, government, history, psychology, or sociology. The department recommends, though it does not require, that its undergraduate majors attain proficiency in at least one modern foreign language. Students planning to go on to graduate school are advised that demonstration of competence in one or more appropriate foreign languages is an important consideration in the admissions and fellowship award process of most leading universities. Students should also note that a knowledge of statistics and computer usage is highly desirable for advanced work in history.

Students may extend the scope of their undergraduate programs through the offerings of cooperating colleges in Worcester, by independent study and research, and in the honors program in history. Further information about these matters is available from the department chairman or other members of the department.

GRADUATE PROGRAM

The principal areas of graduate study are American, English, and modern European history. The department's affiliation with the American Antiquarian Society provides graduate students with the facilities of one of the country's finest research libraries, with over 750,000 volumes and many valuable manuscripts relating to early American history down to 1876. A dozen smaller libraries in Worcester, with combined holdings of over a million volumes, further extend the resources of the Clark Library, as does easy access to Boston, Providence, and New Haven area research facilities.

Course offerings on the graduate level distinguish between reading seminars ("colloquia") and research seminars (simply "seminars"). Whether in the Ph.D. or M.A. programs, students register for a research seminar or an individual research course in each semester of their formal residence, and all entering students take the Departmental Seminar (30). A first-year student (whether M.A. or Ph.D.) takes four courses each semester; a second-year Ph.D. student registers for only three in each semester. (Full-time residence is expected of all graduate students in their first two years.) Beyond the seminar requirement, students fill out their programs by taking colloquia, additional research seminars, independent study and research courses, and upper-division undergraduate history courses. The chairman initially assigns students to advisers, who help work out individual programs. With the permission of his adviser, a student is encouraged to take suitable courses in other departments.

Master of Arts: Students interested primarily in an M.A. degree and not in the doctorate are normally not admitted to graduate study. The M.A. is awarded to graduate students who have completed the course and one-year residence requirements, have written substantial research papers in two seminars or in individual research courses and have passed the required oral examination.

DOCTOR OF PHILOSOPHY

The Department offers two related doctoral programs. One, known as the TTT program, combines the traditional core of the doctoral program with a study of interdisciplinary techniques and experience in curriculum development and teaching. Information may be obtained from Professor Ford, the Director of the TTT program. The second doctoral program is the traditional one described below.

The traditional doctoral program is designed to enable students to master the discipline of history through research, reading, and teaching. In addition to meeting the seminar and course requirements outlined above, a student must spend at least two years in residence at Clark, satisfy the language requirement, gain some experience in college teaching, pass a preliminary examination, and write a doctoral dissertation within seven years of matriculation.

Language Requirement: Students concentrating in American and British history must pass an examination in one foreign language: French, German, Spanish, or Russian. Those specializing in European history must pass examinations in two foreign languages, normally French and German. The chairman will designate an examiner in each language, who will determine whether the student is proficient enough to use the language as a research tool. An entering student must take a language examination as soon as it is offered in his first semested of residence, and must have passed this examination by the end of the first calendar year of residence in order to register for his second year. If required, the second language examination should be attempted early in the second year and must be completed before the student registers for his third year. All language requirements must be satisfied before the preliminary oral examination can be scheduled.

Teaching Experience: Some teaching experience at the college level is a prerequisite to the Ph.D. degree. A number of students serve as assistants in History 10 and other courses in their third year of residence, while others teach in cooperating institutions in the Worcester area.

Fields: Soon after arriving at Clark, the student, in cooperation with his adviser, defines four fields and prepares for them in whatever ways seem appropriate in view of his background and interests. Students specializing in American history normally offer the full scope of American history as two fields. Those concentrating in non-American history normally offer one American field (the dividing line between the two American fields generally falls at 1815). Any student may offer a non-historical subject as a field, usually within the social sciences, or prepare a field in social science theory and research techniques.

Preliminary Examination: One of the four fields is completed early through an oral examination, and the remaining three fields are tested in an oral examination, which must be attempted by the fall of the third year. The two oral examinations over the four fields constitute the "preliminary examination" required by the Graduate Board.

Dissertation: Students are advised to consider and explore possible dissertation topics during their years of residence and to choose a possible dissertation adviser as soon as possible. After submitting a complete draft to his adviser, the student must defend his thesis and answer questions covering the related thesis field in a final examination.

Deadline for Completion: All work required for the doctor's degree *must* be completed within a seven year period after matriculation. In unusual circumstances only, such as involuntary military service or extended illness, the department may grant a specified extension of time.

COURSES

Except for History 88, all courses carry four hours credit. The term *proseminar* refers to undergraduate courses that are limited in enrollment and combine reading, discussion, and reports.

F10a. HISTORY OF EUROPE AND THE UNITED STATES (1500-1815).

A study of selected topics designed to illustrate the evolution of modern Western society. The emphasis throughout is on the thought patterns underlying institutional developments.
Mr. Borg.

F10b. HISTORY OF EUROPE AND THE UNITED STATES (1815-Present).

Mr. Campbell, Mr. Savage.

F11a. PROSEMINAR: THE ANCIENT ORIGINS OF WESTERN CULTURE.

Reading and discussion will concentrate on the Greek, Judeo-Christian and Roman elements of Western culture. Analytical techniques from the social sciences will be employed as an aid in developing an historical understanding. Mr. Savage.

12a. HISTORY OF ENGLAND (to 1800).

A study of selected problems in the historical development of English culture from the early medieval period. Mr. Savage.

12b. HISTORY OF ENGLAND (1800-Present). Mr. Savage.

F14a. HISTORY OF ASIA (to 1800). Not offered, 1969-70.
A survey of Asian history to the present, emphasizing India, China, and Japan.
Mr. Barrow.

F14b. HISTORY OF ASIA (1800-Present). Not offered, 1969-70.
Mr. Barrow.

F17b. PROSEMINAR: ORIGINS OF CONTEMPORARY AMERICAN THEMES.
Designed to provide historical perspective on themes of current interest and to analyze the conceptual approach employed by historians in dealing with such themes.
Mr. Billias.

F19a. TRADITIONAL AFRICA.
The development of several pre-European civilizations in Africa, including those of Kush, the Sudanic Kingdoms, the Zanj, Zimbabwe, and Nok-Ife-Benin. An anthropological approach will be used to explore traditional African society and values. Mr. Ford.

F19b. MODERN AFRICA.
A study of differing views on European penetration of Africa, including an analysis of slavery and the slave trade, exploration, the missionary movement, imperialism, and independence, and concentrating on southern Africa and areas of English influence.
Mr. Ford.

141a. PROSEMINAR: THE AMERICAN CHARACTER.
A study of the problem of national character and its historical validity. Mr. Barrow.

208b. PROSEMINAR: TOTALITARIANISM.
A study of the nature of totalitarianism and of the origins, ideology, and operation of the German Nazi regime. Mr. Borg.

210a. "OLD EUROPE" AND ANCIENT REGIME, 1550-1789. Not offered, 1967-70.
A study of the nature and impact of absolutism, mercantilism, early capitalism, and modern science upon "Old Europe" and the system of European states before the French Revolution. Mr. Lucas.

210b. THE FRENCH REVOLUTION AND THE COMPARATIVE STUDY OF REVOLUTIONS.
An analysis of old and new ideas of revolution, including ritual, resistance, reactionary restoration vs. innovation; of the "democratic" revolution; of the psychology, sociology, and social psychology of revolutionary behavior; and of the relevance of the French Revolution to 20th-century issues. Mr. Lucas.

211. EUROPE SINCE 1815. Not offered, 1969-70.
Mr. Borg.

215. GERMANY SINCE 1500. Not offered, 1969-70.
Mr. Borg.

218a. 18th-CENTURY EUROPEAN INTELLECTUAL HISTORY Not offered, 1969-70.
The "Enlightenment" and its critics: the scientific revolution, philosophical reformism, and early conservative romanticism. The emphasis is on methods of intellectual history as focused upon rival perceptions of man's psychological and social nature, history, and aesthetic and religious sensibilities. Mr. Lucas.

218b. 19th-CENTURY EUROPEAN INTELLECTUAL HISTORY.
The elaboration of the "Enlightenment" by its heirs and critics. The emphasis remains the same as in 218a, but the focus shifts to an analysis of political and economic liberalism, social Darwinism, "utopian" and "scientific" socialism, positivism, nationalism and racism, old and new conservatisms, and the reassessment of the values and progress of European civilization. Mr. Lucas.

219a. FRANCE SINCE 1870.
An investigation of the major problems confronting France while moving from the 19th into the 20th century. Mr. Brubaker.

220b. PROSEMINAR: TUDOR AND STUART ENGLAND Not offered, 1969-70.
The period from 1485 to 1688 with attention to the social background of English literature and conditions leading to the colonization of America. Mr. Savage.

221b. PROSEMINAR: VICTORIAN BRITAIN.
Problems in the development of middle-class culture. Mr. Savage.

222a. PROSEMINAR: BRITAIN IN THE TWENTIETH CENTURY.
An examination of the impact of economic change, mass communication, and war upon British society and culture. Mr. Savage.

231a. THE EXPANSION OF EUROPE, 1400-1600.
A survey of the origins and consequences of European expansion in its formative stages, with particular emphasis on English developments. Mr. Barrow.

232b. ENGLAND IN AMERICA, 1600-1700. Not offered, 1969-70.
An analysis of the process and consequences of the transplantation of Englishmen and English traditions to the new American environment. Mr. Barrow.

233a. ERA OF THE AMERICAN REVOLUTION.
An analysis of American society in the pre-Revolutionary period with particular emphasis upon the ideological and political developments that led to the War of Independence.
Mr. Billias.

233b. FORMATION OF THE NEW NATION.
An analysis of the American revolutionary experience, political theories in the making of the Federal Constitution, problems of the new government, and developments in the American political tradition through the Jeffersonian era. Mr. Billias.

238b. THE NEGRO IN AMERICAN HISTORY.

241a. HISTORY OF AMERICAN HIGHER EDUCATION.
The role of higher education in American life from 1636 to the present, with emphasis on the rise and character of the American university. Mr. Koelsch.

242b. AMERICAN ECONOMIC HISTORY. Not offered, 1969-70.
Survey of American economic development from colonial days to the present. (Economics 142a, Economic History of the U.S., three semester hours, counts as a history course within the major) .

243a. AMERICAN DIPLOMATIC HISTORY, 1778-1941. Mr. Hayden.

244b. PROSEMINAR: CHILDHOOD, YOUTH, AND FAMILY IN AMERICAN HISTORY.
An exploration of the changing role and structure of the family, the varieties of family experience, and the problems of youth in historical perspective. Miss Hareven.

245a. COMPARATIVE STUDIES IN HISTORY AND GEOGRAPHY. Not offered, 1967-70.
Comparative analysis of selected literature of historical geography and related fields of history with special attention to methodological differences. Mr. Koelsch, Mr. Peet.

245b. HISTORICAL GEOGRAPHY OF THE EASTERN UNITED STATES.
Studies in settlement and resource utilization on the eastern seaboard before 1860. Mr. Koelsch.

246a. THE AMERICAN CITY.
Major themes in the social and cultural development of American cities from colonial origins to the present. Miss Hareven.

247b. RADICALISM AND REFORM IN MODERN AMERICA.
An analysis of protest and reform thought and movements from Populism to the New Left, with emphasis on their social origins. The focus will fall on the question of continuity in the American reform tradition. Miss Hareven.

254a. AMERICAN CONSTITUTIONAL HISTORY (to 1865). Not offered, 1969-70.
Both a. and b. focus on the origins of the American constitutional system with special reference to the role of the Supreme Court and its decisions. First semester to 1865 emphasizes the foundations of the Constitution, the emergence of judicial review, and the relationship of Federal and state authority. Mr. Campbell.

254b. AMERICAN CONSTITUTIONAL HISTORY (since 1865).
Second semester after 1865 stresses the expanding role of government, the development of the modern Presidency, and issues of civil rights and liberties. Mr. Campbell.

274b. THE MODERN FAR EAST. Not offered, 1969-70.
Primarily international relations in the region since 1895. Mr. Hayden.

281a. RUSSIA, 1700-1917. Mr. Iatrides.

282b. HISTORY OF THE SOVIET SYSTEM.
A brief survey of Marxist ideology and pre-1917 Russian history and a concentration on the political, economic (non-technical), and social evolution of Russia under the Communist regime. Mr. Iatrides.

30b. DEPARTMENTAL SEMINAR.
The philosophy of history and the history of the idea of history from Thucydides to modern times. Mr. Borg.

31b. STUDIES IN EARLY MODERN EUROPEAN HISTORY. Mr. Lucas.

32. STUDIES IN MODERN EUROPEAN HISTORY. Mr. Borg.

33. STUDIES IN MODERN BRITISH HISTORY. Mr. Savage.

34. STUDIES IN EARLY AMERICAN HISTORY. Mr. Barrow.

35. STUDIES IN 18th-CENTURY AMERICAN HISTORY. Mr. Billias.

36. STUDIES IN 19th-CENTURY AMERICAN HISTORY. Mr. Koelsch.

37. STUDIES IN RECENT AMERICAN HISTORY. Miss Hareven.

38. STUDIES IN AFRICAN HISTORY. Mr. Ford.

39. STUDIES IN THE HISTORY AND INTERNATIONAL RELATIONS OF EUROPE.
Mr. Hayden.

304. SEMINAR: SOCIAL SCIENCES AND THE CITY. Mr. Stanton.

330b. SEMINAR: RISE OF POLITICAL PARTIES IN THE EARLY AMERICAN REPUBLIC.
(Ideology, Aims, and Practices of the Federalists and Jeffersonian Republicans.)
Mr. Billias.

331b. SEMINAR: THE MIDDLE PERIOD OF AMERICAN HISTORY, 1815-1877.
Mr. Koelsch.

332a. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (to 1815).
Mr. Billias.

332b. COLLOQUIUM: THE LITERATURE OF AMERICAN HISTORY (since 1815).
Mr. Koelsch.

334. INTRODUCTION TO RESEARCH IN AMERICAN COLONIAL HISTORY. Not offered, 1969-70.

Historiography of leading American colonial historians from colonial times to the present combined with an examination of bibliographical guides to the field.

Mr. Billias, Mr. McCorison.

339a. SEMINAR: AMERICAN URBAN HISTORY.

The focus falls on the American adjustment to the urban, industrial experience. Research will utilize original sources in Worcester and other New England towns.

Miss Hareven.

372a. SEMINAR: HISTORICAL GEOGRAPHY OF NEW ENGLAND. Mr. Koelsch.

88. SPECIAL PROJECTS.

Undergraduates, normally juniors and seniors, may construct a reading or research course with an instructor of their choosing. The consent of the instructor *must* be obtained in advance. Variable credit.

Linguistics

INTRODUCTION TO LINGUISTICS.

Courses in Linguistics Offered at the College of the Holy Cross and Open to Students from Clark University: The first semester is devoted to the theory and methodology of descriptive linguistics. The course deals with the nature and function of language, the relation between speech and writing, phonology, morphology, syntax, lexicology, the sociocultural setting of language, the contact of linguistic systems, and the problems of "correctness." Emphasis is placed upon the dynamics of systems analysis. The second semester examines the theory and methodology of historical and comparative linguistics. It focuses on linguistic geography, linguistic borrowing, the causes of linguistic changes, the comparative method and reconstruction, and problems in analyzing languages with and without a literary tradition.

Three semester hours each semester. Mr. Macris.

115. MAN AND LANGUAGE. Not offered, 1969-70.

An introduction to the analysis of the nature and function of human language and its role in the life of individuals and societies. The approach is interdisciplinary, with attention to the points of view of philology, contemporary linguistics, anthropology, psychology and philosophy. The lectures focus on such questions as: What is language? What is the relation between language and thought? To what extent does our language determine how we perceive the world? Why and how do languages change? What other functions does language serve besides communication? Why do we not have a world language? How have linguists achieved an objective, scientific analysis of linguistic systems? What are the limitations of such a science?

The course is designed for the general student who wishes to know more about the nature of the uniquely and universally human institution of language, and for the student or teacher of English or foreign languages who is interested in the light which linguistic science can throw upon the relations between his field and other areas of life and knowledge.

First semester: lectures. Second semester: a seminar in which the members of the group report in depth on problems of their choosing.

Consent of the instructor required. Offered in alternate years.

Three semester hours each semester. Mr. Reid

CS201. COMPUTATIONAL LINGUISTICS.

See description under computer science. Mr. Chan.

250. HISTORY OF THE ENGLISH LANGUAGE.

See description under English. Mr. Macris.

260b. SEMINAR: MODERN AMERICAN ENGLISH. Not offered, 1969-70.

See description under English. Mr. Macris.

261b. SEMINAR: LINGUISTIC APPROACHES TO LITERATURE.

See description under English. Mr. Macris.

Mathematics

DEPARTMENT FACULTY

Zalman Rubinstein, Ph.D., *Professor of Mathematics, Department Chairman*
John M. Danskin, Ph.D., *Professor of Mathematics*
John F. Kennison, Ph.D., *Associate Professor of Mathematics**
John S. Stubbe, Ph.D., *Associate Professor of Mathematics*
Stephen Baron, Ph.D., *Assistant Professor of Mathematics*
Robert W. Kilmoyer, Jr. B.A., *Assistant Professor of Mathematics*
Herbert Silverman, Ph.D., *Assistant Professor of Mathematics*
George S. Shapiro, A.M., *Instructor in Mathematics*
*On leave of absence, 1969-70

UNDERGRADUATE PROGRAM

The Department offers courses leading to a major in mathematics, courses necessary for the study of physical and certain social sciences, and courses for the student wishing to learn the fundamental concepts of mathematics.

The mathematics major requires five year-courses in mathematics, excluding Mathematics 11, and including one year-course on the 200 level. In addition, two year-courses must be taken in one of the following areas; biology, chemistry, computer science, economics, geography, geology, philosophy, physics, psychology, sociology. Two of the three courses, 13, 113, and 114, should normally be taken in the sophomore year at the latest. Students showing particular promise in Mathematics 12 will be encouraged to take both 113 and 114 in their sophomore year. These students should have proper advice from their instructor before the end of their freshman year.

At least 36 semester hours of a major's program must be selected from other than the following fields or courses: All Group A courses, and certain courses in computer science, economics, geography, and psychology which depend heavily on Math. In each case, please consult with the Department.

The course in Numerical Analysis includes work with the computer.

GRADUATE PROGRAM

The department offers courses leading to the degrees of Master of Arts and Doctor of Philosophy.

The requirements for the M.A.* are as follows: (1) Mathematics 300; (2) three courses beyond Mathematics 300, except that, with the consent of the department, a student may substitute two courses below Mathematics 300 in place of one beyond; (3) Master's preliminary examination; (4) a Master's thesis; and (5) an oral examination.

The requirements for the Ph.D.*, in addition to the general requirements of the Graduate School, are as follows: (1) a student must pass a preliminary examination, which he would normally complete after his first and second years of residence; the examination will be designed to test the student's knowledge and facility in the basic material of algebra, analysis, and topology; (2) the student must show proficiency in at least one foreign language related to his major field. In each case the fulfillment of this requirement will be determined by the department chairman in consultation with the student's thesis advisor.

All Candidates for the M.A. and Ph.D. degrees in Mathematics will be required to serve as teaching assistants or as assistants in the Computing Center as part of the work for their degrees.

COURSES

F11a. INTRODUCTION TO MATHEMATICS.

Intended for the general student, the course treats topics in the foundations of mathematics and its role in today's world.

Three semester hours. Mr. Shapiro.

F11b.

College algebra, trigonometry, and other basic topics are reviewed thoroughly.

Three semester hours. Mr. Shapiro.

F12. CALCULUS.

Introduction to differential and integral calculus of one variable; sequences and series; essential for further study in mathematics as well as for the study of applications in the natural and social sciences.

Four semester hours each semester. Mr. Kilmoyer, Mr. Silverman, and Staff.

13. INTERMEDIATE CALCULUS.

Geometric and physical applications of integration, three-dimensional analytic geometry, partial differentiation, multiple integrals, and a brief introduction to differential equations. Prerequisite: Mathematics 12.

Four semesters hours each semester. Mr. Stubbe.

100. UNDERGRADUATE SEMINAR IN MATHEMATICAL MODELS. Not offered, 1969-70.

This is a seminar type course in which elementary examples of mathematical models are examined. Each student presents a model based on his own mathematical interpretation of any social, political, game-type or other situation. Means of applying mathematical games and models to the social and physical sciences are discussed. Knowledge of Set Theory desirable. Signature required. Not normally open to freshmen.

Two semester hours. Mr. Kennison.

113. INTRODUCTION TO ALGEBRAIC CONCEPTS.

An introduction to fundamental concepts such as: sets, mappings, equivalence relations, rings, linear algebra, vector spaces, linear transformations, eigenvalues, eigenvectors, and inner product spaces. Prerequisite: Mathematics 12 or consent of instructor.

Three semester hours each semester. Mr. Shapiro.

114. INTRODUCTION TO ANALYSIS.

The real number system, sequences, limits of functions, convergence and uniform convergence of sequences of functions, continuity, uniform continuity, differentiability and elements of point-set topology. Prerequisite: A or B in Mathematics 12, or Mathematics 12 and 13, plus consent of the instructor. Mathematics majors are required to take Mathematics 114.

Three semester hours each semester. Mr. Silverman.

130a. INTRODUCTION TO COMPUTING.

This first course in computing concentrates on the solution of computational problems through the use of an algorithmic language. FORTRAN is primarily used in order to develop the ability to attack substantial problems. Designed for students majoring in mathematics or the physical sciences.

Three semester hours. Mr. Chan.

131b. COMPUTERS AND PROGRAMMING. Not offered, 1969-70.
This course is designed to introduce the student to basic computer organization, machine language, programming and the use of assembly language programming systems. In particular SPS and machine language for the 1620 and assembler language for the 360-40 is used extensively.
Three semester hours. Mr. Stubbe.

210. MATHEMATICAL STATISTICS. Not offered, 1969-70.
Elements of probability theory, frequency distribution test of significance, large and small sampling, analysis of variance. Prerequisite: Mathematics 13.
Four semester hours each semester. Mr. Stubbe.

212a. NUMERICAL ANALYSIS.
Calculus of finite differences, introduction to the theory of interpolation, error analysis, direct and iterative methods for solving equations and systems of equations. Prerequisite: Mathematics 13.
Four semester hours. Mr. Stubbe.

214. MODERN ANALYSIS.
Topological, metric and linear methods are studied and used as a basis for a general approach to differentiation, integration and related topics in analysis. Prerequisites: Mathematics 114 or consent of the instructor.
Four semester hours each semester. Mr. Rubinstein.

215. MODERN ALGEBRA.
Introduction to the theory of groups, rings, integral domain, fields, and related topics. Prerequisite: Mathematics 113 or consent of the instructor.
Four semester hours each semester. Mr. Baron.

216. PROBABILITY.
A mathematical course developing rigorously the foundations of probability. Illustrated with many examples from gambling, etc. Prerequisite: consent of the instructor.
Three semester hours each semester. Mr. Danskin.

220. APPLIED MATHEMATICS. Not offered, 1969-70.
Ordinary and partial differential equations and their applications, vector analysis, infinite series, line and surface integrals, Bessel functions, Legendre polynomials and Fourier series, introduction to functions of a complex variable. Prerequisite: Mathematics 13. Offered in alternate years.
Four semester hours each semester. Mr. Rubinstein.

230a. INTRODUCTION TO COMPUTING. Not offered, 1969-70.
For a description of this course see Mathematics 130a. In addition students electing this course are assigned more advanced projects. Prerequisite: consent of the instructor.
Three semester hours. Mr. Stubbe.

231b. COMPUTERS AND PROGRAMMING. Not offered, 1969-70.
For a description of this course see Mathematics 131b. In addition students electing this course are assigned more advanced projects. Prerequisite: consent of the instructor.
Three semester hours. Mr. Stubbe.

235b. COMPUTATIONAL LINGUISTICS. 3 credits.

An introduction to computational linguistics, processing of natural language data on the digital computer; properties of programming languages; Turing machines, computability, finite state languages, theory of automata, context free and context-sensitive languages, phrase structure grammars; theories of natural language analysis; transformational grammar; automatic analysis of syntax and phonology; machine translation and related problems in information retrieval.

Mr. Chan.

290. TOPICS IN ANALYSIS.

Content will be changed from year to year.

Three semester hours each semester. Staff.

291. TOPICS IN ALGEBRA.

Content will be changed from year to year.

Three semester hours each semester. Staff.

292. TOPICS IN TOPOLOGY.

Content will be changed from year to year.

Three semester hours each semester. Staff.

298. HONORS I.

Three semester hours each semester. Staff.

299. HONORS II.

Three semester hours each semester. Staff.

300. SETS AND TOPOLOGY.

The foundations of set theory and the relationship of various fundamental axioms, such as Zorn's lemma and the Axiom of Choice. Point-set topology as far as the Hahn-Mazurkiewicz Theorem.

Three semester hours each semester. Mr. Danskin.

316. FUNCTIONS OF A COMPLEX VARIABLE. Not offered, 1969-70.

Analytic functions, line integrals, conformal mapping. Riemann surfaces. Prerequisite: Mathematics 214 or consent of the instructor. Offered in alternate years.

Three semester hours each semester. Mr. Silverman.

318. FUNCTIONS OF A REAL VARIABLE.

Foundations of the real number system, algebra of sets, transfinite arithmetic, metric spaces, topological spaces, sequences and series, measure theory, differentiation and integration and introduction to category theory. Prerequisite: Mathematics 214; corequisite: Mathematics 300.

Three semester hours each semester. Mr. Baron.

321. ALGEBRAIC TOPOLOGY. Not offered, 1969-70.

Introduction to algebraic topology including homotopy theory, singular and simplicial homology, and application to general spaces. Prerequisite: Mathematics 214 and 215.

Three semester hours each semester. Mr. Danskin.

323. UNIFORM SPACES. Not offered, 1969-70.
Elementary theory, function spaces and the exponential law, mappings into polyhedra, compactifications, fine spaces, dimension theory. Prerequisite: Mathematics 318 or consent of the instructor.
Three semester hours each semester.

325. ADVANCED MODERN ALGEBRA.
Galois theory, group theory, Wedderburn structure theorems for rings and linear algebras, introduction to algebraic number fields. Prerequisite: Mathematics 215; corequisite: Mathematics 300.
Three semester hours each semester. Mr. Kilmoyer.

326. SELECTED TOPICS IN COMPLEX ANALYSIS. Not offered, 1969-70.
Topics selected from the theory of univalent and multivalent functions, geometric function theory, zeros of polynomials and extremal polynomials. Prerequisites: Mathematics 316 or consent of the instructor.
Three semester hours.

330. MASTER'S THESIS. Staff.

333. TOPOLOGICAL FUNCTION SPACES. Not offered, 1969-70.
Various topologies for sets of functions are studied and their properties determined. Emphasis on the exponential laws, Ascoli-Arzelà theorems, and applications to point-set topology. Prerequisites: Mathematics 318 or consent of the instructor.
Three semester hours each semester.

335. SELECTED TOPICS IN ALGEBRA. Not offered, 1969-70.
Prerequisites: Mathematics 325 or consent of the instructor.
Three semester hours.

341. DIFFERENTIAL EQUATIONS. Not offered, 1969-70.
Ordinary differential equations, theory and techniques of solutions. Partial differential equations. Fourier transform, distributions and their applications.
Three semester hours each semester. Mr. Rubinstein.

358. CATEGORY THEORY. Not offered, 1969-70.
Three semester hours each semester. Mr. Baron.

376. REPRESENTATION THEORY OF FINITE GROUPS. Not offered, 1969-70.
Prerequisite: Mathematics 325 and consent of the instructor.
Three semester hours each semester.

381. SEMINAR IN COMPLEX VARIABLE.
Three semester hours each semester. Staff.

382. SEMINAR IN ABSTRACT ANALYSIS AND POINT-SET TOPOLOGY.
Three semester hours each semester. Staff.

383. SEMINAR IN ALGEBRA.
Three semester hours each semester. Staff.

390. READINGS IN MATHEMATICS.
Reading of the mathematical literature related to the student's research program.
Three semester hours each semester. Staff.

391. RESEARCH IN MATHEMATICS.
Direction of the Ph.D. dissertation.
Three semester hours each semester. Staff.

Music

DEPARTMENT FACULTY

Relly Raffman, A.M., *Professor of Music, Department Chairman*
Wesley M. Fuller, M.Mu., *Associate Professor of Music*
Evelyn Fuller, M.M. *Assistant Professor (Affiliate) of Piano*
The Philharmonia Woodwind Quintet *(Artist-in-residence):*
John Miller, M.M., *Assistant Professor (Affiliate) of Bassoon*
Raymond Toubman, M.A., *Assistant Professor (Affiliate) of Oboe*
William Wrzesian, M.M., *Assistant Professor (Affiliate) of Clarinet*
Elinor Preble, B.M., *Assistant Professor (Affiliate) of Flute*
David Ohanian, B.M., *Assistant Professor (Affiliate) of French Horn*

UNDERGRADUATE PROGRAM

The department offers courses designed to teach students how to listen to music intelligently, to develop a comprehension of music on its own terms and to acquaint students with representative works from various periods of music history.

To be admitted to the music major, a student must demonstrate through a written examination a knowledge of the fundamentals of music, and he must demonstrate no later than the beginning of the sophomore year the ability to read and perform simple keyboard works.

The music major includes the following courses:

Theory: 121a and b (to be taken in the Freshman year). 122a, 123b, 124a and 125b.

MUSIC HISTORY: 12a and 112a; 13b and 113b; 14a and 114a; 15b and 115b; 16b or 17b.

Associated studies: a one-semester course in either art or esthetics.

In the senior year, students who wish to emphasize composition should elect Music 118; students who wish to emphasize music history should elect Music 128. In addition, all majors must satisfactorily complete 36 semester hours outside of Philosophy 13b (Esthetics), courses in fine arts, courses in literature and courses in European history.

Individual instruction in piano, flute, oboe, clarinet, bassoon and french horn will be arranged if the demand in any given area is sufficient. Payment for lessons is made by the semester; practice facilities are available at a nominal rental fee.

COURSES

F10a. INTRODUCTION TO MUSIC.

Designed for the non-major, this course is a prerequisite for entrance into Music 12 through 17, inclusive. No credit toward the major allowed. Open to freshmen.

Three semester hours. Staff.

120a. INTRODUCTION TO MUSIC.

Special topics in music pedagogy. For majors only.

One semester hour. Staff.

F121a. FUNDAMENTALS OF MUSIC.
Notation, ear-training, sight-singing and elementary melodic and harmonic organization.
Three semester hours. Mr. Raffman.

F121b. PRIMARY THEORY
Open to freshmen Prerequisite: 121a or consent of instructor.
Three semester hours. Mr. Raffman.

12a. MEDIEVAL AND RENAISSANCE PERIODS. Not offered 1969-70.
A survey of music before 1600. Prerequisite: 10a. Offered in alternate years.
Three semester hours. Mr. Fuller.

112a. SPECIAL TOPICS IN MEDIEVAL AND RENAISSANCE MUSIC. Not offered 1969-70.
Independent study. Required of all music majors, but open to anyone concurrently enrolled in 12a.
One semester hour. Mr. Fuller.

122a. THEORY: MODAL COUNTERPOINT. Not offered 1969-70.
Offered in alternate years. Prerequisite: 121a.
Three semester hours. Mr. Fuller.

F13b. BAROQUE AND CLASSICAL PERIODS. Not offered 1969-70.
A survey of music from 1600 to 1800. Offered in alternate years.
Three semester hours. Staff.

113b. SPECIAL TOPICS IN BAROQUE AND CLASSICAL MUSIC. Not offered 1969-70.
Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 13b.
One semester hour. Staff.

123b. THEORY: 18TH CENTURY COUNTERPOINT. Not offered, 1969-70.
Canon and Fugue. Prerequisite: 121a. Offered in alternate years.
Three semester hours. Mr. Raffman.

14a. NINETEENTH CENTURY MUSIC.
A survey of the Romantic Period. Offered in alternate years. Prerequisite: 10a.
Three semester hours. Mr. Raffman.

114a. SPECIAL TOPICS IN 19TH CENTURY MUSIC.
Independent study. Required of all Music Majors, but open to anyone concurrently enrolled in 14a.
One semester hour. Mr. Raffman.

124a. THEORY: 19TH CENTURY PRACTICE.

Prerequisite: 121a. Offered in alternate years.

Three semester hours. Mr. Fuller.

F15b. TWENTIETH CENTURY MUSIC.

A survey of music from Debussy to the electronic synthesizer. During the latter stages of the course, laboratory work in the electronic studio will be arranged. Prerequisite: 10a or 121a. Offered in alternate years.

Three semester hours. Staff.

115b. SPECIAL TOPICS IN 20TH CENTURY MUSIC.

Independent study. Required of all music majors, but open to anyone concurrently enrolled in 15b.

One semester hour. Staff.

125b. THEORY: 20TH CENTURY PRACTICE.

Prerequisite: 121a and 124a. Offered in alternate years.

Three semester hours. Staff.

F16b. CHORAL MUSIC.

Selected choral compositions from all periods of music history will be analyzed with score and recording. Because the study of performance problems is of key importance, a number of the works will be performed by the class. Prerequisite: 10a, or permission of the instructor. Offered in alternate years.

Three semester hours. Mr. Fuller.

F17b. OPERA.

Not offered, 1969-70.

With the help of translated librettos, recordings and selected readings, a study is made of a group of operas representing all periods of music history, with emphasis on the many solutions to the combination of music and drama. Prerequisite: 10a. Offered in alternate years.

Three semester hours. Mr. Fuller.

18. INSTRUMENTAL INSTRUCTION.

Academic credit may be arranged for students majoring in music according to the particular program of instruction undertaken and with the consent of the department.

Staff.

118. SENIOR TUTORIAL IN MUSIC HISTORY.

Three semester hours each semester. Staff.

128. SENIOR TUTORIAL IN COMPOSITION.

Three semester hours each semester. Staff.

Philosophy

DEPARTMENT FACULTY

Robert N. Beck, Ph.D., *Professor of Philosophy, Chairman*
Jefferson A. White, Ph.D., *Associate Professor of Philosophy*
Gilbert S. Markle, Ph.D., *Assistant Professor of Philosophy*
Gary E. Overvold, Ph.D., *Assistant Professor of Philosophy*
Walter E. Wright, M.A., *Assistant Professor of Philosophy*

UNDERGRADUATE PROGRAM

The department offers courses to students who wish to broaden their perspective and trace relations among the various fields of knowledge and to students who wish to major in philosophy.

The major consists of at least 24 semester hours in philosophy and 18 additional hours in related fields. The latter are determined according to the student's special interest. Course programs for majors require approval of the departmental chairman.

The outside field requirement in philosophy of 36 semester hours requires specific course determination. Courses credited toward this requirement must be individually approved by the departmental chairman as part of the major's program.

COURSES

F11a. LOGIC AND SCIENTIFIC METHOD.

Principles of valid reasoning and inductive methods and their application to problems of the natural and social sciences. Consideration of the relations between logic and problems of value.

Three semester hours. Mr. Beck.

F12a. PROBLEMS OF PHILOSOPHY.

Nature and method of philosophy. Application of philosophical method to contemporary personal and social problems. Detailed analysis of some typical problems in various fields of philosophy.

Three semester hours. Mr. Markle.

F12b. PROBLEMS OF PHILOSOPHY.

Mr. Beck.

Philosophy 120 series is organized in four semester-courses, I, II, III and IV

F121b. HISTORY OF ANCIENT PHILOSOPHY I.

Movements of philosophical thought from their origins with the early Greeks through Plato and Aristotle. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. White.

122b. HELLENISTIC AND MEDIEVAL PHILOSOPHY II.

Not offered, 1969-70.

Developments in Hellenistic and medieval philosophy from Epicureanism, Stoicism, Skepticism, and Neo-Platonism through Augustine, Aquinas, and William of Occam to the attack on scholasticism. Prerequisite: Philosophy 121 or F12b.

Three semester hours. Mr. White.

123a. HISTORY OF MODERN PHILOSOPHY III.

Major thinkers and philosophical movements from the beginnings of the modern period in Descartes through Kant. The two great trends in modern thought — Continental Rationalism and British Empiricism — will be examined in particular regard to their implications for, and effects upon, our contemporary view of the world. Prerequisite: three semester hours in philosophy or History 10.

Three semester hours. Mr. Overvold.

123b. HISTORY OF MODERN PHILOSOPHY III.

Mr. Markle.

124b. HISTORY OF RECENT PHILOSOPHY IV.

Recent developments in philosophy, with emphasis upon analytical philosophy (Positivism) on the one hand, and continental philosophy (Existentialism) on the other. Prerequisite: Philosophy 123a or 123b.

Three semester hours. Mr. Overvold.

13a. PROBLEMS OF ETHICS.

Consideration of important ethical theories to acquaint the student with problems and scope of ethics and to aid him in the formulation of an ethical outlook. Open to juniors and seniors.

Three semester hours. Mr. Beck.

13b. SOCIAL PHILOSOPHY.

Principles underlying social structure and functions. Examination of the goals, purposes, norms and ideals of social process, and the relation of that process to the individual good. Open to juniors and seniors.

Three semester hours. Mr. Beck.

14a. KIERKEGAARD AND NIETZSCHE.

Investigation of the roots of contemporary existential thought in the nineteenth century through the analysis of major writings by Soren Kierkegaard and Friedrich Nietzsche. Emphasis on their doctrines of knowledge, existence and man. Open to juniors and seniors. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. Wright.

14b. NINETEENTH AND EARLY TWENTIETH CENTURY GERMAN PHILOSOPHY.

Trends in philosophy during this period considered as a background for understanding recent philosophy. Philosophers to be studied include Fichte, Hegel, Schopenhauer, Nietzsche, Marx, Engels and Comte. Prerequisite: Philosophy 123b.

Three semester hours. Mr. Wright.

15a. PHILOSOPHY OF RELIGION.

The nature of religion as revealed by the examination of representative forms of religious experience. Emphasis is placed on the effect of contemporary knowledge on the understanding of the religious dimension. Open to juniors and seniors. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. Wright.

16a. ESTHETICS. Not offered, 1969-70.

The nature of art, the characteristics of esthetic experience, and the relation of art to the human enterprise as a whole. Special reference is made to representative figures in contemporary philosophy such as Santayana, Veron, Dewey, Weitz, Macdonald, Bosanquet, Langer, Hume, and T. H. Greene. Open to juniors and seniors. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. White.

16b. METAPHYSICS. Not offered, 1969-70.

Clarification of the nature of metaphysical thinking and views of representative contemporary philosophers on the nature of space, time, causality, matter, force, self-identity, mind, body, and freedom. Open to juniors and seniors. Prerequisite: Philosophy 121 and 123.

Three semester hours. Mr. White.

17a. PHILOSOPHY OF SCIENCE I.

An introduction to certain traditional problems of epistemology and metaphysics, cast into the terms and context of 20th century science. The questionable "ontological status" of theories is the principal point of focus. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. Markle.

17b. PHILOSOPHY OF SCIENCE II.

A more advanced treament of selected problems in scientific explanation. One such problem is that of "artificial intelligence" in machines. Does the traditional problem of mind and body become any less onerous when viewed within the developing context of Cybernetics and information theory? Some symbolic logic is required. Prerequisite: six semester hours in *both* philosophy and a natural science. Philosophy 17a recommended.

Three semester hours. Mr. Markle.

18a. HISTORY OF AMERICAN PHILOSOPHY.

Survey of important philosophical ideas in America with emphasis on their relationship to American experience. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. Beck.

18b. SYMBOLIC LOGIC.

Advanced work in symbolic logic, with stress on principles of deductive rigor. Some consideration of philosophical implications of logic. Topics to be discussed include: sentential calculus, predicate calculus, Tarski's definition of truth, selected metatheorems, and Henkin's completeness proof for the first order predicate calculus. Prerequisite: permission of instructor.

Three semester hours. Mr. Wright.

19a. EXISTENTIALISM.

Examination of the major literature of existentialist thought, with emphasis on its significance to the contemporary world. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. Overvold.

19b. EPISTEMOLOGY.

Survey of the major topics in theory of knowledge, including study of significant alternative positions. Prerequisite: three semester hours in philosophy.

Three semester hours. Mr. Overvold.

99. READINGS IN PHILOSOPHY.

Exploration of significant philosophic issues as determined by student interest. Individual programs, including prerequisites, are developed in consultation with the department.

Normally, three semester hours. Staff.

Physics

DEPARTMENT FACULTY

Roy S. Anderson, Ph.D., *Professor of Physics, Department Chairman*
Earl E. Hays, Ph.D., *Professor (Affiliate) of Physics**
C. Alton Coulter, Ph.D., *Associate Professor of Physics**
Roger P. Kohin, Ph.D., *Associate Professor of Physics*
John A. Davies, Ph.D., *Associate Professor of Physics*
William R. Fehlner, Ph.D., *Assistant Professor of Physics*
Barbara C. Kohin, Ph.D., *Assistant Professor of Physics*
Joseph P. McEvoy, Ph.D., *Assistant Professor of Physics*

*On leave of absence, 1969-70.

UNDERGRADUATE PROGRAM

The undergraduate program in physics is designed to prepare a student for a career in physics, to supplement the program of another science, or to introduce the field, as a part of liberal studies.

The physics major will provide a strong foundation for students preparing for graduate study or will assure proper training for teaching and professional work in physics. The major consists of Physics 12b, 130a, 135a, 140b, 145b, 150a, 155a, 160b, 200a, 202a, 207a, six additional semester hours in physics, Mathematics 13 and six additional semester hours in mathematics beyond Mathematics 13. Majors are strongly urged to take two years of either German or Russian. In addition at least 36 semester hours of a major's program must be taken from other than Group A courses.

Qualified students are encouraged to participate in the Physics Honors Program. During the junior and senior year the Honors student conducts an individual experimental or theoretical research project under the guidance of a faculty member. This work is submitted to the Department as an Honors Thesis. Recommendation for a degree with Honors in Physics is determined by the quality of the thesis and the performance of the student on a comprehensive examination in physics. An Honors candidate must maintain an overall B-average in physics and mathematics courses. Further information about the Honors Program is available from the Department.

GRADUATE PROGRAM

Graduate programs are offered leading to the degrees of Master of Arts and Doctor of Philosophy. A doctoral program in Chemical Physics, offered jointly with the Department of Chemistry, is also available.

Departmental research is being conducted in both theoretical and experimental physics. There are theoretical research programs in solid state physics and elementary particles. Experimental programs include studies of the magnetization of superconductors and pressure effects in solids at low temperatures and the use of electron spin resonance spectroscopy to investigate radiation damage in solids and the nature of ferroelectricity. In addition, theoretical and experimental research in oceanography is offered in cooperation with the Woods Hole Oceanographic Institution.

Graduate scholarships, teaching and research assistantships, and various research fellowships are available. Information on these awards will be furnished on request to the Department of Physics. First year graduate students usually receive teaching assistantships and a tuition scholarship. Following the first academic year, graduate students may be awarded twelve-month research assistantships with tuition scholarships. Research conducted while on research assistantships may constitute thesis or dissertation work.

All graduate students are required to pass the Physics Qualifying Examination which is designed to test the student's ability to solve problems at the upper-class undergraduate level. One year of teaching apprenticeship, or its equivalent, is required of all candidates for advanced degrees.

In addition to the requirements of the Graduate School, students in the M.A. program are generally responsible for the material covered in Physics 301, 304, and 305.

Students in the Ph.D. program must satisfy the Ph.D. residence requirements of the Graduate School, namely 54 semester hours of graduate credit, or, for students with the Master's degree, 24 semester hours of graduate credit. The Department of Physics requires that a student in the Ph.D. program must pass, either at Clark University or elsewhere, graduate courses in physics and related fields, credit for which must total at least 54 semester hours, including at least 12 semester hours in mathematics and 6 semester hours in any related field, including mathematics. The maximum credit for research is 12 semester hours. Courses taken to fulfill part of the requirements for a Master's degree may be included in satisfying this departmental requirement. Doctoral students are responsible for the material covered in Physics 301, 304, and 305.

Students in the doctoral program take the Physics Preliminary Examination no later than the beginning of the third year of graduate study. This is a comprehensive written and oral examination covering classical and modern physics at the graduate level. To be admitted to candidacy the student must pass an oral examination on a dissertation research proposal presented at a departmental colloquium.

Doctoral students must satisfy the departmental language proficiency requirement: Proficiency must be demonstrated in two languages selected from among French, German or Russian. Languages other than these may be chosen with permission of the Department. Proficiency can be demonstrated by giving the sense of papers in the field of physics which have been published in the chosen language. The language tests are to be administered by the faculty of the Department of Physics and must be passed no later than one year after the presentation of the dissertation proposal.

A detailed description of graduate programs and requirements is available from the Department of Physics.

COURSES

F10a. CONCEPTS OF CLASSICAL PHYSICS.

An introduction to the theories and concepts of mechanics, thermodynamics, and electrodynamics. Three lectures, one laboratory, and one conference per week. Prerequisite: consent of the instructor or three years of high school mathamatics, including algebra and trigonometry.

Four semester hours. Mr. Kohin.

F11b. CONCEPTS OF MODERN PHYSICS.

An introduction to the theories of relativity, statistical mechanics, and quantum mechanics, with elementary applications. Normally a terminal course. Students intending to take more than one year of physics should take Physics 12b following Physics 10a. Three lectures, one laboratory, and one conference per week. Prerequisite: Physics 10a.

Four semester hours. Mr. Kohin.

F12b. MECHANICS AND RELATIVITY.

Particle dynamics in inertial reference frames. Relativity. Required for a major in physics. Prerequisite to all more advanced courses in physics. Three lectures and one laboratory per week. Prerequisite: Physics 10a or equivalent, with Mathematics 12 concurrently.

Four semester hours. Mr. Kohin.

130a. ELECTRICITY AND MAGNETISM.

Phenomenological development of Maxwell's equations. Electric and magnetic properties of materials. Electric circuit theory. Three lectures per week. Prerequisite: Physics 12b with Mathematics 13 concurrently.

Three semester hours. Mr. McEvoy.

135a. ELECTRICITY AND MAGNETISM LABORATORY.

Electrical and magnetic measurements. Exploration of electrical and magnetic phenomena. Co-requisite: Physics 130a.

Two semester hours. Mr. McEvoy.

140b. MODERN PHYSICS.

A survey course treating contemporary ideas. An introduction to the quantum theory, with applications to atoms, nuclei, particles and the solid state. Prerequisite: Physics 130a.

Three semester hours.

145b. MODERN PHYSICS LABORATORY.

Experiments in modern physics. Co-requisite: Physics 140b. One laboratory per week.

One semester hour.

150a. WAVES AND OSCILLATIONS.

Oscillating mechanical and electrical systems. Electromagnetic and matter waves. Applications of the Schroedinger wave equation. Prerequisites: Mathematics 13 and Physics 130a.

Three semester hours. Mr. McEvoy.

155a. WAVES AND OSCILLATIONS LABORATORY.

Experiments involving oscillating systems. The experimental study of optics. Co-requisite: Physics 150a.

One semester hour. Mr. Anderson.

160b. ELECTROMAGNETISM.

The mathematical theory of electricity and magnetism. Fields and potentials. Maxwell's equations. Electromagnetic waves. Prerequisite: consent of the instructor.

Four semester hours. Mr. Fehlner.

200a. ADVANCED LABORATORY.

Laboratory in atomic, molecular, nuclear and solid state physics. Three hours each week.

One semester hour. Mr. Kohin.

201b. LABORATORY PROJECTS.

Individual experimental projects in atomic, molecular, nuclear, and solid state physics. Projects are selected in consultation with the instructor and may consist of a single experiment conducted through the entire semester.

Two semester hours. Mr. Kohin.

202a. THERMODYNAMICS AND STATISTICS. Not offered, 1969-70.

The laws of thermodynamics. Kinetic theory and particle statistics. Four lectures. Prerequisite: Mathematics 13 and Physics 140b. Offered in alternate years.

Four semester hours. Mr. McEvoy.

205a. ELECTRONIC DEVICES AND CIRCUITS.

Principles of electron tubes and transistors, with emphasis on design and construction. Three lectures and one laboratory per week. Prerequisite: consent of the instructor. Offered in alternate years.

Four semester hours. Mr. Anderson.

207a. INTRODUCTION TO QUANTUM THEORY.

An introduction to quantum wave mechanics. Solutions of the Schroedinger equation. Operator techniques. Angular momenta. Approximation methods. Spectroscopy. Prerequisite: Physics 140b or consent of the instructor.

Four semester hours. Mr. Davies.

208b. INTRODUCTION TO THE SOLID STATE. Not offered, 1969-70.

Crystal structure: symmetry and space groups. Chemical bonding: ionic and covalent crystals. Thermal and elastic properties. The band theory of metals and semi-conductors. Dielectric and magnetic properties. Low temperature properties. Superconductivity. Prerequisite: Mathematics 13 and consent of the instructor. Offered in alternate years.

Four semester hours. Mr. McEvoy.

209b. INTRODUCTION TO THE NUCLEUS.

Waves and particles, natural radioactivity, detection instruments, nuclear structure, nuclear transformations, neutron physics, fission and fusion, mesons, pions, and strange particles. Three lectures and one laboratory per week. Prerequisite: Physics 140b or consent of the instructor. Offered in alternate years.

Four semester hours.

230. SPECIAL TOPICS IN PHYSICS.

Independent studies in physics to provide for special needs. Individual experimental or theoretical projects are encouraged.

Variable credit. Staff.

235. HONORS.

Independent experimental or theoretical research in physics.

Three semester hours each semester. Staff.

301b. ADVANCED MECHANICS.

Lagrangian and Hamiltonian formulations. Kinematics and dynamics of rigid body motion. Canonical transformations. Hamilton-Jacobi theory.

Four semester hours. Mr. Davies.

304. ELECTRODYNAMICS. Not offered, 1969-70.

Maxwell's equations. The special theory of relativity. Electromagnetic radiation. Boundary value problems. Lagrangian formulation of electrodynamics.

Three semester hours each semester. Mr. Coulter.

305. QUANTUM MECHANICS. Not offered, 1969-70.

The superposition principle. Linear vector spaces. Electron spin. The Schrödinger and Heisenberg pictures. Angular momentum. Scattering theory. Time-independent and time-dependent perturbation theories. Many particle systems. Non-relativistic quantum field theory. Prerequisite: Physics 207 or equivalent.

Four semester hours each semester. Mr. Davies.

306a. ADVANCED QUANTUM MECHANICS.

Relativistic wave equations, nonrelativistic and relativistic quantum field theory, applications to solid state physics and particle physics. Prerequisite: Physics 305 or equivalent.

Three semester hours. Mr. Davies.

308. THEORY OF ATOMIC AND MOLECULAR SPECTRA. Not offered, 1969-70.

The electronic configuration of atoms: the Pauli principle and the building-up principle. Fine structure and the spinning electron. The Zeeman and Paschen-Back effects. Nuclear effects: hyperfine structure. The structure and properties of molecules as revealed by rotational, vibrational, and electronic spectra. Covalent and ionic bonds. Prerequisite: Physics 305 or consent of instructor.

Two semester hours each semester. Mr. Kohin.

309. MAGNETIC RESONANCE. **Not offered, 1969-70.**
The theory of the electron spin and nuclear magnetic resonance experiments, particularly in solids. The spin Hamiltonian and the magnetic interaction between particles. Chemical bonds and their description by the molecular orbital method. Prerequisite: Physics 308.
Two semester hours each semester. Mr. Kohin.

310. TOPICS IN PARTICLE THEORY. **Not offered, 1969-70.**
Subject matter drawn from such areas as quantum electrodynamics, S-matrix theory, Regge poles, approximate symmetry groups for strong interactions, etc., according to the interests of students and instructor. Prerequisite: Physics 305 or equivalent.
Two semester hours each semester. Mr. Coulter.

312b. APPLICATIONS OF GROUP REPRESENTATIONS TO PHYSICS. **Not offered, 1969-70.**
Representation theory for finite groups. Applications to crystallographic point groups. Representation of compact continuous groups. The rotation group with applications to atomic structure. SU (n) with applications to elementary particle theory. Finite-dimensional representations of the Lorentz group. Prerequisite: Physics 207.
Three semester hours. Mr. Coulter.

313b. LOW TEMPERATURE PHYSICS.
The thermodynamics of low temperature phenomena. The properties of liquid helium. Cryogenics. The low temperature properties of solids, especially superconductivity.
Three semester hours. Mr. McEvoy.

314. ELECTRON EFFECTS IN SOLIDS.
Advanced consideration of the behavior of electrons in solids, particularly in conductors and semiconductors. Prerequisite: Physics 208 and 305 or equivalents.
Three semester hours each semester. Mr. Fehlner.

330. CURRENT PROBLEMS IN PHYSICS.
A specific topic in experimental physics is considered at the research level. Topics are selected on the basis of current interest.
Variable credit. Staff.

335. TOPICS IN THEORETICAL PHYSICS.
An area of theoretical physics, chosen principally for students conducting theoretical research. Topics selected, as required, to emphasize special research areas or methods.
Variable credit. Staff.

340. COLLOQUIUM.
Weekly lectures on various topics of current interest.
One semester hour each semester. Staff.

350. RESEARCH.
Variable credit. Staff.

Psychology

DEPARTMENT FACULTY

Seymour Wapner, Ph.D., *G. Stanley Hall Professor of Genetic Psychology, Department Chairman*
Robert W. Baker, Ph.D., *Professor of Psychology*
Tamara Dembo, Ph.D., *Professor of Psychology*
Bernard Kaplan, Ph.D., *Professor of Psychology*
Morton Wiener, Ph.D., *Professor of Psychology*
Joachim F. Wohlwill, Ph.D., *Professor of Psychology*
Roger Bibace, Ph.D., *Associate Professor of Psychology*
Leonard E. Cirillo, Ph.D., *Associate Professor of Psychology*
David Stea, Ph.D., *Associate Professor of Geography and Psychology*
Donald G. Stein, Ph.D., *Associate Professor of Psychology*
David A. Stevens, Ph.D., *Associate Professor of Psychology*
Kenneth W. Terhune, Ph.D., *Associate Professor of Psychology*
Ina C. Uzgiris, Ph.D., *Associate Professor of Psychology*
James D. Laird, Ph.D., *Assistant Professor of Psychology*
Neil O. Rankin, Ph.D., *Assistant Professor of Psychology*
Jacques Vonèche, Ph.D, *Assistant Professor of Psychology*

Clemens E. Benda, M.D., *Professor (Affiliate) of Psychology*
Harold Goodglass, Ph.D., *Professor (Affiliate) of Psychology*
Donald Broverman, Ph.D., *Associate Professor (Affiliate) of Psychology*
William Vogel, Ph.D., *Associate Professor (Affiliate) of Psychology*
Edward L. Klaiber, M.D., *Lecturer in Psychology*
Peter H. Wolff, M.D., *Lecturer in Psychology*
Melvin Barton, Ph.D., *Psychology Consultant to the Psychological Services Center*
Polly Deweese, M.S., *Social Work Consultant to the Psychological Services Center*
Victor H. Pentlarge, M.D., *Psychiatry Consultant to the Psychological Services Center*
Malcolm Sills, M.D., *Psychiatry Consultant to the Psychological Services Center*

UNDERGRADUATE PROGRAM

The department offers courses for students majoring in psychology, majors in allied fields and students wishing an orientation to the field of psychology as part of their general education.

Psychology 11a or 11b is a prerequisite to all other psychology courses. The major in psychology consists of at least 40 semester hours, in either psychology courses or courses designated as related to the major by the Department. At least 20 semester hours must be in psychology courses, and at least 10 semester hours must be in courses related to the major. Majors are required to take Psychology 11a or 11b and a minimum of one laboratory course (Psychology 201b, 203b, 204a, 205a, 206b, 210b, 223b, 236a). Psychology 160b, 260a, or their equivalent is a prerequisite for laboratory courses. In addition, at least 36 semester hours of a major's program must be selected from other than the following fields or courses: All biology, education, linguistics, philosophy, psychology and sociology courses; and selected courses from economics, geography, government, and mathematics. A list of these courses is available in the Department Office.

Honors work in psychology is available to seniors who have demonstrated high scholastic achievement and the ability to work independently in scholarly situations. Students in the Honors Program carry out an independent research project under the sponsorship of a faculty member. This research provides the basis for a thesis, which upon completion is presented and defended by the student before an examining committee composed of faculty members. On the basis of the report of the examining committee and the student's adviser for the project, the Department may recommend to the College Board that the student be awarded departmental honors at one of the following levels: Highest Honors, High Honors, or Honors in Psychology.

Application for admission into the Psychology Honors Program is normally made during the second semester of the junior year, and no later than May 1 of that year. Six hours of Psychology 296 (Directed Research) and/or Psychology 297 (Directed Reading), taken during the junior year, is prerequisite for admission to the program. Students who have not fulfilled this prerequisite, but who can show evidence of the ability to do independent research, can petition the Department for waiver of the prerequisite.

Students preparing for graduate work are encouraged to take more than one laboratory course, and should also obtain a reading knowledge of French, German or Russian.

GRADUATE PROGRAM

The department admits to graduate work only those students who plan to enroll in the Ph.D. program on a full-time basis. A Master of Arts degree, based on an experimental thesis, ordinarily completed within the first two years of graduate work, is a requirement for admission to candidacy for the Ph.D. degree. In addition, there is the requirement that every graduate student participate in the Teaching Apprenticeship Program of the department. Credit hours are not ordinarily assigned to graduate courses; however, all graduate courses carry the equivalent of three semester hours each semester.

Master of Arts: The customary program consists of five year (ten semester) courses — including experimental methods in psychology (301a), statistical methods (302) and seven additional semester courses — supplemented by the writing of a thesis in the area of special interest.

Doctor of Philosophy: The student is required to pass with distinction five courses during the first year of graduate study and a minimum of four courses during the second year. The departmental language requirement must be met by a knowledge of French, German or Russian. He is required, normally at the end of the second year, through written examination, to demonstrate his competence in psychology as a whole and in an area of specialization. In addition, the student is required to demonstrate his ability to conduct independent research as evidenced by the presentation of an acceptable dissertation. Research for the dissertation should normally be completed during the fourth year at the University; however, the length of the program will vary depending upon individual circumstances. At a final oral examination a student is required to defend his dissertation and to show his competence in the general field of psychology and in his area of specialization.

The overall aim of the graduate program is to provide the student with a general, integrated background covering the various areas of psychology. Within this emphasis more specialized training — with special stress on experimental analysis — is available in the following areas: perception, physiological, learning, thinking and problem-solving, language, social and personality. The department maintains, in addition to general experimental laboratories, specialized facilities for research and training in comparative, learning, physiological, perception, child and social psychology.

There are also three more formalized programs which provide specialized training in the areas of Clinical, Developmental and Rehabilitation Psychology.

Clinical Psychology Program. The department offers a four-year A.P.A.-approved program in clinical psychology leading to the degree of Doctor of Philosophy. Beyond the standards of proficiency in the general field of psychology expected of all students, the student in the Clinical Program will be required to demonstrate special mastery in the understanding of concepts in the clinical area and in the use of clinical methods. One year of internship is included in this four-year program. Provision is made for a wide variety of practical experiences in cooperating institutions, clinics and agencies. There are over 20 institutions and agencies in Worcester, Boston, Providence and surrounding areas which cooperate in providing such practicum and research facilities. In addition to the one-year internship, all students in the Clinical Program obtain a variety of practicum experiences in the Clark University Psychological Services Center throughout their enrollment in the graduate program. For further information, write to the director of the program: *Dr. Morton Wiener.*

The Psychological Services Center, directed by *Dr. Roger Bibace,* is operated in connection with the Clinical Psychology Program. For further information concerning the Center, see that section in the catalog.

Post-doctoral training in clinical psychology is available. It aims to provide opportunities for clinical psychologists to develop further their clinical and research skills. Facilities of the Department, of Gardner State Hospital, and other agencies are utilized.

Developmental Psychology Program. This program is designed to train students in the comparative and experimental analysis of behavioral development. It emphasizes not only the study of human development over a wide age range, but also stresses the application of developmental principles, concepts and methods to problems of general psychology, psychopathology, social psychology, etc. For further information, write to the director of the program: *Dr. Bernard Kaplan.*

Rehabilitation Research Training Program. In conjunction with all other areas of specialization, rehabilitation research training is available. This training is designed to prepare students for investigation of psychological problems as they occur in everyday life. Emphasis on development of novel techniques and concepts is a main feature of the training. An integral part of the program is an apprenticeship-practicum during which the various phases of research in real-life settings are examined under the guidance of a staff member. This program is especially pertinent to those who are interested in social-emotional and value problems of handicapped and non-handicapped people. For further information, write to the director of the program: *Dr. Tamara Dembo.*

Interdisciplinary Work. The Department recognizes the interest of many students to undertake study and research which cuts across disciplines or areas that now exist. Interdisciplinary activity by students is generally feasible at Clark inasmuch as various members of the Psychology faculty are now, or recently have been, engaged in activities with faculty of such departments as Biology, Education, English, Geography, History Mathematics and Sociology. Dr. David Stea offers jointly with the School of Geography undergraduate and graduate courses in Behavioral Science and the Environment, and Development of Spatial Cognition. In addition informal seminars on topics of mutual interest to geographers and psychologists are scheduled from time to time throughout the year.

Financial Aid. In addition to University scholarships, fellowships, teaching assistantships, and stipends, the Department has available such forms of financial support as United States Public Health Service and Rehabilitation Services Administration training stipends, Veterans Administration assistantships and stipends, NDEA and NSF Traineeships, and research assistantships.

THE HEINZ WERNER INSTITUTE OF DEVELOPMENTAL PSYCHOLOGY

Associated with the Department is the Heinz Werner Institute of Developmental Psychology, which has three aims: first, to integrate various research programs dealing with developmental problems; second, to bring to Clark University scholars, teachers, and research workers from disciplines for which developmental problems are pertinent such as anthropology, biology, and certain areas of medicine; third, to train research workers on post-doctoral levels in the comparative-developmental approach to behavior. Information concerning post-doctoral work at the Institute may be obtained by writing to *Dr. Bernard Kaplan.*

COURSES

F11a. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.
Four semester hours. Mr. Vonèche.

F11b. GENERAL PSYCHOLOGY.

Introduction to the principles of human behavior.
Four semester hours. Mr. Wapner.

12a. PSYCHOANALYSIS AND THE CONCEPT OF MAN.

Psychoanalytic contributions to the understanding of human behavior and conflicts.
Two semester hours. Mr. Bibace.

103a,b. ABNORMAL PERSONALITY.

An analysis of the concepts used to explain development of the abnormal personality and a survey of the major types of deviant behavior. Prerequisite: Psychology 172a.
Three semester hours. Mr. Weiner and Mr. Baker.

130b. PSYCHOLOGY OF LEARNING.

Methods and findings in the study of learning are discussed, with emphasis on their relation to theories of learning. Selected controversial issues are examined.
Three semester hours. Mr. Stevens.

150a. INTRODUCTION TO CHILD PSYCHOLOGY: PHYSICAL AND INTELLECTUAL DEVELOPMENT.

The normal development of the child from infancy up to adolescence, with emphasis on the areas of physical and motor development, cognitive processes and language, and emotional and fantasy life.

Three semester hours. Mrs. Uzgiris.

150b. INTRODUCTION TO CHILD PSYCHOLOGY: PERSONALITY AND SOCIAL DEVELOPMENT OF THE CHILD.

The development of the child's personality and interpersonal behavior, in relation to family, peer group and culture.

Three semester hours. Mrs. Uzgiris.

160b. QUANTITATIVE METHODS.

Introduction to basic techniques of descriptive and inferential statistics. Primarily for sophomores with a good background in algebra, and prospective majors intending to spend the junior year away from Clark.

Three semester hours. Mr. Broverman.

170a. INTRODUCTORY SOCIAL PSYCHOLOGY.

Theories, concepts, and research of social psychology are introduced by considering their relevance to contemporary social issues, such as race relations, alienation, generational estrangement, conformity, culture and culture change, democracy.

Three semester hours. Mr. Terhune.

172a,b. PSYCHOLOGY OF PERSONALITY.

Consideration of various theoretical approaches, including psychoanalytic, behaviorist and self theories, and of research work in areas such as anxiety, stress, unconscious processes, emotion and motivation.

Three semester hours. Mr. Vogel and Mr. Laird.

201b. LABORATORY IN SOCIAL PSYCHOLOGY.

Research on social behavior will be conducted through field studies and laboratory experiments. Objectives will be (a) to show the student how social psychological knowledge is acquired and (b) to permit the student to contribute to the discovery of new knowledge in social psychology. Prerequisite: Psychology 170a and 160b.

Four semester hours. Mr. Terhune.

202a. PSYCHOLOGY OF THINKING.

Not offered, 1969-70.

Types of thought processes and methods of investigating them, with emphasis on concept formation, imagination, creative thought, reasoning and problem solving.

Three semester hours.

203b. LABORATORY IN PERCEPTION.

The laboratory course in perception will include investigation of sensory and perceptual phenomena in a variety of sense modalities. Theoretical and methodological issues will be considered in the context of specific experimentation. Prerequisite: Psychology 160b or 260a.

Four semester hours. Mr. Vonèche.

204a. LABORATORY IN LEARNING.

The course is designed to familiarize students with research methods and experimental designs used in investigations of theories of learning and learning phenomena, with both human and animal subjects. Prerequisite: Psychology 130b, and either Psychology 160b or 260a.

Four semester hours. Mr. Stevens.

205a. LABORATORY IN THINKING.

Empirical studies of selected problems in such areas as concept formation, problem solving, and psycholinguistics. Related theoretical and methodological issues considered in their historical context. Prerequisite: Psychology 160b or 260a.

Four semester hours. Mr. Cirillo.

206b. LABORATORY IN PERSONALITY.

Investigation of problems in such areas as perceptual defense, motives and performance, self perception, experimenter influence and emotions. Both prescribed and original experiments are performed. Prerequisite: Psychology 160b and 172a, or their equivalents.

Four semester hours. Mr. Laird.

207a,b. BEHAVIORAL SCIENCE AND THE ENVIRONMENT.

Human and animal social behavior related to aspects of the physical environment. Social interaction, territory, density, movement and migration. Introduction to environment design: problem formulation, design processes, simulation. Offered jointly with School of Geography. Prerequisite: permission of instructor.

Three semester hours each semester. Mr. Stea.

209b. DEVELOPMENTAL APPROACHES TO BEHAVIOR.

A critical examination of presuppositions, methods, concepts and empirical inquiries of those concerned with the development of behavioral systems. Implications of developmental conceptualization for all of the life sciences will be discussed. Psychological theories of Freud, Piaget and Werner will be given special emphasis.

Four semester hours. Mr. Kaplan.

210b. LABORATORY IN DEVELOPMENTAL PSYCHOLOGY. Not offered, 1969-70.

The laboratory course in developmental psychology will be aimed at giving students direct experience with the phenomena described by Heinz Werner and Jean Piaget. The course will exemplify concepts such as syncresis in different populations (young children, schizophrenics, mentally retarded, etc.) and at different developmental levels, for instance, at the level of action or of thought. (Students analyze cognitive processes, and conduct an experiment.) Prerequisite: Psychology 160b or 260a and 209b.

Four semester hours. Mr. Bibace.

211a. DEVELOPMENTAL APPROACHES TO LEARNING. Not offered, 1969-70.

Applications of developmental psychology to slow learners in the classroom. Particular attention is paid to the work of Kephart, Rabinovitch and Cruickshank. Practicum work with children is required. Prerequisite: Psychology 160b, 209b.

Three semester hours. Mr. Bibace.

214a. SEMINAR IN AGGRESSIVE BEHAVIOR.

A critical examination of the concept of aggression, including theories pertaining to source of aggressivity and its expression as well as relevant empirical evidence. Psychodynamic, behaviorist, and ethological viewpoints will be discussed.

Three semester hours. Mrs. Uzgiris.

220a. MATHEMATICAL APPROACHES TO PSYCHOLOGY. Not offered, 1969-70.

Intensive analysis of several mathematical models used in psychology. Offered in alternate years. Prerequisite: Mathematics 12 or consent of the instructor.

Three semester hours.

221a. MYTH, DREAM AND SYMBOL.

A critical examination of various theories of symbol-formation with special emphasis on the origins, structures and functions of dreams and myths. The relation of dream formation to psychopathology and the recent work on the physiological bases of dreaming will also be discussed. Prerequisite: consent of the instructor. Psychology of Language desirable but not necessary. Limited enrollment.

Four semester hours. Mr. Kaplan.

222a. PHYSIOLOGICAL PSYCHOLOGY: INTRODUCTORY.

A survey of current problems and theory in physiological psychology. Emphasis will be placed upon the physiological bases of motivation, emotion, learning, perception and memory. Theoretical models of CNS activity will also be discussed.

Three semester hours. Mr. Stein.

223b. LABORATORY IN PHYSIOLOGICAL PSYCHOLOGY.

Introduction to methods and techniques used to study the physiological bases of behavior. Students participate in debates of interest to the group. Prerequisite: Psychology 222a or consent of the instructor.

Four semester hours. Mr. Stein.

224b. HUMAN BEHAVIOR AND NERVOUS SYSTEM FUNCTIONING.

Biological-behavioral relationships in terms of individual differences are discussed. Among the topics covered are: electrophysiological studies of autonomic functioning of stress; EEG; brain localization of behavioral functions in humans by means of electrical stimulation and studies of brain damage; selected problems in psychopharmacology. Equal emphasis is placed upon investigations of normal and abnormal processes.

Three semester hours. Mr. Vogel.

225a. SEMINAR IN REHABILITATION PSYCHOLOGY.

Psychological problems in everyday life situations, such as problems of physically disabled, mentally retarded, the aged, the poor, etc., will serve as topics. The primary focus is on interpersonal relationships and value problems.

Three semester hours. Miss Dembo.

226b. SEMINAR IN INDIVIDUAL DIFFERENCES. Not offered, 1969-70.

An examination of the evidence for and explanation of individual differences in both cognitive functioning and personality. Particular attention is given to the influence of socio-cultural factors.

Three semester hours. Mrs. Uzgiris.

227a. BIOLOGICAL CORRELATES OF BEHAVIOR.

Special emphasis on sex differences.

Three semester hours. Mr. Broverman.

228b. PSYCHOLOGY OF LANGUAGE.

A psychological analysis of the use of symbols in language, dreams, and myth. Prerequisite: consent of the instructor.

Three semester hours. Mr. Kaplan.

230b. CONTEMPORARY ISSUES IN LEARNING.

Seminar dealing with contemporary theory and research in the psychology of learning. Prerequisite: Psychology 130b and consent of instructor.

Three semester hours. Mr. Stevens.

231b. SEMINAR IN THE HISTORY OF PSYCHOLOGY. Not offered, 1969-70.

Historical development of theories and methods in psychology. Prerequisite: consent of the instructor.

Three semester hours. Mr. Kaplan.

232b. SEMINAR IN MODERN PSYCHOLOGICAL THEORIES. Not offered, 1969-70.

Comparisons and evaluations of various modern theories in psychology. Prerequisite: consent of the instructor.

Three semester hours.

233b. HISTORY AND CONTEMPORARY THEORIES.

Examination of the history and current status of selected methods and theories in psychology. Prerequisite: consent of the instructor.

Three semester hours. Mr. Cirillo.

236a. LABORATORY IN CHILD PSYCHOLOGY.

Survey of research methods used in the study of children, with particular emphasis on observational techniques. Lecture: 2 hours. Laboratory: 3 hours. Prerequisite: Psychology 160b, 260a, 150a or 150b.

Four semester hours. Mr. Wohlwill.

237b. INTERPERSONAL PERCEPTION. Not offered, 1969-70.

A detailed examination of various theoretical approaches to phenomena of interpersonal perception. Included will be the predictions of role theory, balance and consistency theories, and various personality theories. The empirical evidence relative to these predictions will be discussed; particular attention will be given observations that are not readily interpretable by social psychological theories.

Four semester hours.

240b. THE MOTIVATING FUNCTION OF STIMULATION.

This course will deal with the role of certain properties of stimuli such as novelty, variety, incongruity and complexity, in arousing and maintaining interest, exploration and affect. It will include coverage of the experimental literature on this subject, as well as applications to and implications for the psychology of aesthetics and for the individual response to the physical environment.

Three semester hours. Mr. Wohlwill.

260a. INTRODUCTION TO QUANTITATIVE METHODS IN PSYCHOLOGY.

Introduction to basic techniques of descriptive and inferential statistics. Primarily for juniors. Prerequisite for all laboratory courses for those who have not taken Psychology 160b.

Three semester hours. Mr. Rankin.

270a. ADVANCED TOPICS IN SOCIAL PSYCHOLOGY.

Intensive treatment of selected areas in social psychological research and theory, including: consistency theories in attitude formation and in interpersonal perception; attribution theory in self-perception; social/situational determinants of normal, everyday behavior, and of anti-social behaviors such as violence, criminality and riots. Permission of instructor required.

Three semester hours. Mr. Laird.

271a. SEMINAR IN PSYCHOLOGICAL FACTORS IN INTERNATIONAL RELATIONS.

The relevance of psychological factors to war and peace will be considered, with focus on discoveries from field studies and laboratory simulations. Topics will include national character, nationalism, personality and leadership, arms race vs. deterrence theories, national images and perceptions. Permission of instructor required.

Three semester hours. Mr. Terhune.

296a,b. DIRECTED RESEARCH IN PSYCHOLOGY.

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

Three semester hours each semester. Staff.

297a,b. DIRECTED READINGS IN PSYCHOLOGY.

Independent study for qualified students not in the honors program. Prerequisite: approval of department chairman.

Three semester hours each semester. Staff.

299. HONORS IN PSYCHOLOGY: SENIOR YEAR.

Students will carry out a research project under the direction of a member of the staff.

Four semester hours each semester. Staff.

301a. EXPERIMENTAL METHOD IN PSYCHOLOGY.

General problems of experimental method will be considered in the context of original research projects conducted by the students. Mr. Wapner.

301b. EXPERIMENTAL APPROACHES TO PERCEPTION. Not offered, 1969-70.

Examination of a variety of experimental-theoretical approaches to the study of perception.

Mr. Wapner.

302. STATISTICAL METHODS.

Descriptive statistics, statistical inference and experimental design in psychology.

Mr. Rankin.

303b. MOTIVATION AND RELATED TOPICS. Not offered, 1969-70.

Contemporary issues arising from both animal and human research. Complex human motives, drives, emotions and instincts are discussed. Mr. Laird and Mr. Stevens.

304a. PHYSIOLOGICAL ASPECTS OF BEHAVIOR. I. Not offered, 1969-70.

Neuro-anatomy as related to behavior. Offered in alternate years.

305b. PSYCHOPHYSIOLOGY OF SENSORY PROCESSES. Not offered, 1969-70.

306b. PSYCHOBIOLOGICAL FOUNDATIONS OF BEHAVIOR. Not offered, 1969-70.

307a. PHYSIOLOGICAL PSYCHOLOGY: ADVANCED.

A survey of current problems, theories and controversies in physiological psychology. Course orientation will be similar to the introductory course with more attention to critical experiments and controversies. Also considered will be the neuroanatomy and neurophysiology of important CNS structures. Prerequisite: Some knowledge of experimental method in psychology. Mr. Stein.

307b. PSYCHOBIOLOGY SEMINAR: SELECTED PROBLEMS IN PSYCHOLOGY AND NEUROBIOLOGY.

Critical evaluation by participants of important issues dealing with the neural bases of behavior. Students present material in their area of interest in group discussions and analysis. Where possible, guest lecturers present their research and ideas. Mr. Stein.

308a. SEMINAR IN DEVELOPMENT OF SPATIAL COGNITION.

An examination of cognitive maps and orientation systems in light of new data from psychological and geographical studies of the perception of large environments. Offered jointly with School of Geography. Mr. Stea.

309. APPRENTICESHIP IN REHABILITATION: INTRODUCTORY, I. Miss Dembo.

310. APPRENTICESHIP IN REHABILITATION: INTRODUCTORY, II. Miss Dembo.

311a,b. CLINICAL METHODS, I.

Theory, administration, scoring and interpretation of clinical-psychological tests, objective and projective, with special emphasis on analysis of cognitive functioning.

Mr. Baker.

312a. THEORIES OF DEVIANT BEHAVIOR.

Deviant behavior as viewed by various theories. Clinical and experimental evidence is examined. Mr. Bibace.

313b. PRINCIPLES AND CONCEPTS UNDERLYING PSYCHOLOGICAL TESTS. Not offered, 1969-70.

Theory and problems of psychological measurement with special reference to psychological tests. Mr. Laird.

315a. ADVANCED CHILD PSYCHOLOGY: GENERAL EXPERIMENTAL.

The experimental study of basic processes of child behavior (perception, learning, thinking, etc.) and of major dimensions of developmental change. Mr. Wohlwill.

315b. ADVANCED CHILD PSYCHOLOGY: PERSONALITY-SOCIAL.

Study of the child's personality and social development with particular attention to research concerning itself with antecedent-consequent relationships. · Mrs. Uzgiris.

316a. RESEARCH METHODS IN THE STUDY OF CHILDREN. Not offered, 1969-70.

Survey of methods used in the study of children, with emphasis on the measurement of personality characteristics and on observational techniques. Offered in alternate years.

Mrs. Uzgiris.

316b. METHODOLOGICAL PROBLEMS IN DEVELOPMENTAL PSYCHOLOGY. Not offered, 1969-70.

Questions of scientific method, research strategy, quantitative analysis, etc., arising in developmental research, with particular reference to the study of developmental change in behavior. Offered in alternate years. Mrs. Uzgiris.

317a. BEHAVIOR IN INFANCY. Not offered, 1969-70.

Offered in alternate years. Mrs. Uzgiris.

318. SEMINAR IN PSYCHOLOGY OF INTERPERSONAL RELATIONSHIPS AND REHABILITATION. Not offered, 1969-70.

Value problems pertinent to interpersonal relations will be discussed, including value possessions, value losses, regaining of values and adjustment to value losses. Offered in alternate years. Miss Dembo.

319. SEMINAR IN TOPOLOGICAL PSYCHOLOGY AND REHABILITATION.

Offered in alternate years. Miss Dembo.

320a. ADVANCED SEMINAR ON ORGANISMIC-DEVELOPMENTAL APPROACHES TO BEHAVIOR.

Basic categories of the organismic-developmental approach to life sciences, with examination of the application of these categories to a wide range of problem areas in psychology.

Mr. Kaplan.

321. HIGHER MENTAL PROCESSES. Not offered, 1969-70.

Theory and experimental research pertaining to such functions as remembering, classifying, problem-solving, reasoning, concept-forming, symbolization, etc. Mr. Kaplan.

322a. PSYCHOLOGY OF LEARNING.

Theoretical viewpoints and experiments in the field of learning. Mr. Stevens.

323b. SEMINAR IN LEARNING. Not offered, 1969-70.

Contemporary problems in learning. Mr. Stevens.

324a. THEORIES OF PERSONALITY.

Comparison of various theoretical approaches to the study of personality. Mr. Wiener.

325a. ADVANCED SOCIAL PSYCHOLOGY. Not offered, 1969-70.

Intensive analysis of various theoretical systems in social psychology. Mr. Terhune.

326b. SEMINAR IN PERSONALITY AND SOCIAL BEHAVIOR.

Social behavior as a function of personality and situational determinants is analyzed with particular emphasis on the approach of general systems theory. Prerequisite: Psychology 270a or equivalent. Offered in alternate years. Mr. Terhune.

327b. THE BIOLOGICAL ASPECTS OF HUMAN DEVELOPMENT. Not offered, 1969-70.

Mr. Klaiber.

328b. COMPARATIVE ANIMAL BEHAVIOR. Not offered, 1969-70.

Theories and research in ethology and comparative psychology, including problems of causation, development and evolution, will be discussed. Mr. Stevens.

329a. PSYCHOANALYTIC EGO PSYCHOLOGY. Not offered, 1969-70.

After a systematic review of Freud's major assumptions, propositions, and concepts, emphasis is given to select psychoanalytic writings since 1940 concerned with metapsychology, concepts of ego and adaptation, and psychoanalysis as a developmental psychology.

331a. CLINICAL METHODS, II.

Application of various clinical methods in the assessment of personality. Mr. Barton.

331b. CLINICAL METHODS, II.

Application of developmental theory to the clinical assessment of cognitive functioning and personality by means of projective techniques. Mr. Cirillo.

332b. THEORIES OF PSYCHOTHERAPY.

Comparison of various theoretical approaches to psychotherapy. Mr. Wiener.

333b. LEARNING APPROACHES TO PSYCHOTHERAPY. Not offered, 1969-70.

A critical survey of the applications of contemporary learning theory principles and empirical findings to the modification of deviant behavior. Selected problems pertaining to individual treatment and token-economies.

337b. SEMINAR ON PROBLEMS IN CHILD AND DEVELOPMENTAL PSYCHOLOGY.

The interrelationship between the construction of intellectual space and the perceptual space, including the body schema. Mr. Vonèche.

343b. PERSON PERCEPTION.

Examination of the process by which impressions of others are formed. Emphasis will be placed on the experimental methods used to investigate problems in this area.

Mr. Rankin.

346b. DEVELOPMENTAL PSYCHOLOGY AND PSYCHOANALYSIS. Not offered, 1969-70.

Offered in alternate years.

Mr. Bibace.

347b. DEVELOPMENTAL APPROACHES TO COGNITIVE ASSESSMENT AND BEHAVIOR CHANGES. Not offered, 1969-70.

Clinical applications of Werner's comparative-developmental approach to cognitive assessment and behavior change. The contributions of Kephart, Rabinovitch, Rey, Zazzo, and others are covered. A clinical or experimental study is required.

Mr. Bibace.

348a. SOCIAL PSYCHOLOGICAL PERSPECTIVES ON PROBLEMS OF ADJUSTMENT.

Examination of "deviant" behavior as a socially defined phenomenon, including attention to : the process of attitude and belief formation and change; attribution of characteristics to the self and others; "cognitive" influences on motivation and emotions; socialization of children and adults; and the role of the deviant in society. Consideration of implications of these topics for behavior change.

Mr. Laird.

349. APPRENTICESHIP IN REHABILITATION: ADVANCED, I.

Miss Dembo.

350. APPRENTICESHIP IN REHABILITATION: ADVANCED, II.

Miss Dembo.

351. CLINICAL METHODS, III.

Integration of various methods in assessment of personality and behavior.

Clinical Staff.

352. CLINICAL METHODS, IV.

Application of theoretical principles to psychotherapy.

Miss Deweese, Mr. Sills and Clinical Staff.

356a. PSYCHOPATHOLOGY OF CHILDHOOD. Not offered, 1969-70.

Offered in alternate years.

357b. SYMBOLIC BEHAVIOR: PROBLEM OF THE METAPHOR. Not offered, 1969-70.

A discussion of normal and pathological representation in dreams, art, poetry, thinking, etc.

Mr. Cirillo and Mr. Kaplan.

358a. THEORY AND PRICTICE IN ASSESSMENT OF BRAIN FUNCTIONING.

Mr. Goodglass.

360b. SEMINAR ON SOCIAL CONFLICT. Not offered, 1969-70.

The prospects for a general theory of conflict, pertaining to interpersonal, intergroup, and international relations, will be critically examined. Theories of Boulding, Schelling, Rapoport, and others will be discussed, as well as related research. Students will do case studies and experimental games of conflict will be demonstrated. Offered in alternate years.

Mr. Terhune.

365b. SEMINAR IN ENVIRONMENTAL BEHAVIOR.

Theories and methodology from psychology and geography applicable to the study of environmental behavior.

Mr. Stea and Mr. Wohlwill.

370a. VIOLENCE AND AGGRESSION.

Staff.

380. RESEARCH IN PSYCHOLOGY.

Direction of individual students in their research.

Staff.

381. READINGS IN PSYCHOLOGY.

Critical analysis of literature in areas related to individual research.

Staff.

385. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER.

Introduction and individual intelligence testing.

Mr. Bibace and Clinical Staff.

386. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, II.

Personality evaluation by tests.

Mr. Bibace and Clinical Staff.

387. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, III.

Psychotherapy and consulting.

Mr. Bibace and Clinical Staff.

388. PARTICIPATION IN PSYCHOLOGICAL SERVICES CENTER, IV.

Personality evaluation by interview; psychotherapy.

Mr. Bibace and Clinical Staff.

389. INTERNSHIP. Staff.

DEPARTMENTAL COLLOQUIUM. Visiting Lecturers.

WORKSHOPS.

Conducted annually in such areas as comparative-animal psychology, scaling theory, factor analysis, rehabilitation, cultural anthropology, ethnolinguistics, pathology of language.

Visiting Lecturers.

Romance Languages

DEPARTMENT FACULTY

J. Richard Reid, Ph.D., *Professor of Romance Languages, Department Chairman*
Raymond E. Barbera, Ph.d., *Professor of Romance Languages*
J. Fannin King, M.A., *Associate Professor of Romance Languages*
Theodore Nicol, Ph.D., *Associate Professor of Romance Languages, Emeritus*
Pierre L. Horn, M.A., *Assistant Professor of Romance Languages*
John F. Hyland, M.A., *Assistant Professor of Romance Languages*
Clodius Willis, M.A.T., *Assistant Professor of Romance Languages*
Nancy Baum Missud, M.A.Ed., *Instructor in Romance Languages, Administrative Assistant to the Department Chairman*
Gale H. Nigrosh, M.A.T., *Instructor in Romance Languages*
Claire Quintal, Docteur de l'Université de Paris, *Associate Professor (Affiliate) of French*
Theodore Paul Fraser, Ph.D., *Assistant Professor (Affiliate) of French**

*Spring Semester, 1969.

UNDERGRADUATE PROGRAM

The department offers courses in the languages and literatures of France, Spain and Spanish America. These courses fall principally into two groups: lower level (French and Spanish 11 and 12), and upper level (all other courses). French 113 (French civilization) constitutes a separate category.

In the lower level the primary aim is the mastery of the skills of communication in a language, with a view to its effective use for a variety of possible ends. These skills include reading, writing, speaking and understanding as well as what may be called basic literacy in the language.

In the upper level, the primary aim is an acquaintance in depth with a foreign civilization, principally through a study of its literature but with attention also to other aspects of its culture and to the further perfection of linguistic competence. The courses in literature are complemented by others in civilization and in advanced composition, conversation and phonetics. All upper level courses are conducted in the language.

A major in Romance languages must comprise:

1. Twenty-four semester hours to be chosen from French 137, 241, 247b, 248a, 251a, 252a, 253b, 254b, 260; Spanish 137, 241, 242a, 244b, 245b, 260.
2. French 113 or the equivalent.
3. History 10, or the equivalent, normally to be completed by the end of the sophomore year.
4. At least 6 semester hours, to be approved by the department, in non-Romance literature.

The Romance language major program may be in either French or Spanish exclusively, or include both languages in any proportion to suit the needs and desires of the individual. Major students are urged, however, to acquire a basic competence in both languages even though specializing in only one.

In addition, at least 36 semester hours of a major's program must be selected from other than Group C courses (See Page 26 concerning "Groups").

Students intending to major in Romance languages should consult the department chairman. An honors program in Romance languages is available to qualified upperclassmen.

LANGUAGE LABORATORY

A modern electronic language laboratory is available for class instruction, and independent study. Use of the laboratory is required of students in the lower level and "137" courses in French and Spanish, and available to others.

GRADUATE PROGRAM

M.A.T. The Program for Departmental Interns in Romance Languages, offered with the cooperation of the Department of Education, leads to the degree of Master of Arts in Teaching. The requirements for this degree are listed above, in the catalog section entitled "The Graduate School."

This program of preparation of teachers of French and/or Spanish is explicitly structured as a two-year experience. Participants are appointed as Departmental Interns, and normally have the title of Teaching Assistant Scholar, involving remission of tuition and a cash stipend.

The interns devote half-time to study (in Romance languages and literatures, education or other fields bearing on the individual's needs and interests), and the other half to supervised teaching and assistance to the department.

The program is administered by a Coordinating Committee consisting of the director, who is a member of the Department of Romance Languages, one other member of that department, one member of the Department of Education, and one of the departmental interns. The coordinating committee for 1968-69 was: Mr. Reid, *Romance Languages, Director;* Mrs. Missud, *Romance Languages;* Miss Kenney, *Education, and* Mrs. Markle, *Departmental Intern.*

A brochure containing further details concerning procedures and requirements is available from the director.

COURSES IN FRENCH

F11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods of individual work in the language laboratory. Indivisible course.

Three semester hours each semester. Staff.

F12. INTERMEDIATE.

Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in French. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods, of individual work in the laboratory. Prerequisite: French 11 or equvalent skill in the language, to be determined by a placement test.

Three semester hours each semester. Staff.

113. INTRODUCTION TO FRENCH CIVILIZATION. Not offered, 1969-70.

A selective survey of the history, art, literature and music of France, from the Middle Ages to modern times. An elementary knowledge of French is desirable but not required. Admission subject to consent of instructor. Offered in alternate years.

Three semester hours each semester. Miss Quintal.

F131. READINGS IN FRENCH LITERATURE.

Third-year level. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of reading in French. The emphasis in the second semester is on an understanding of novels and plays selected for their literary excellence and broad appeal. Conducted in French. Prerequisite: French 12 or equivalent skill in the language, to be determined by a placement test.

Three semester hours each semester. Mr. Hyland and Staff.

132a. THE LITERATURE OF EXISTENTIALISM.

Third-year level. Readings in both the imaginative and the critical works of the major exponents of existentialism, with emphasis on the political and social implications of the movement. Conducted in French. Prerequisite: First semester of French 131 or B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours. Mr. Hyland.

133a. THE GREEK MYTH IN THE THEATER OF THE TWENTIETH CENTURY.

Third-year level. Readings and discussions on the adaptation of the Greek myth to reflect the changing views of man and his universe as portrayed in selected plays by Giraudoux, Anouilh, Sartre, Camus, and others. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language; to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours. Mr. Horn.

F134b. SUICIDE: A MODERN DILEMMA.

Third-year level. A study of both fictional and philosophical writings concerning the question of suicide in contemporary French literature. Authors discussed will include Gide, Sartre, Camus, and Malraux. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours. Mr. Horn.

135a. THE MYTH OF NAPOLEON IN NINETEENTH CENTURY LITERATURE.

Third-year level. Readings and discussions on the charismatic influence of Napoleon as portrayed in selected works of Balzac, Hugo, Stendhal, Zola, and others. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours. Mr. Horn.

F135b. SKEPTICISM, LIBERTINAGE AND RATIONALISM.

Third-year level. Study and discussion of the development of the intellectual tradition in French letters from Montaigne to Voltaire. Conducted in French. Prerequisite: First semester of French 131, or grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours. Mr. Hyland.

136b. FRENCH POETRY: BAUDELAIRE TO THE PRESENT.

Third-year level. An extensive examination of Symbolist and Surrealist poetry. Other modern poets, such as Saint-John Perse, Aragon and René Char, will also be discussed. Conducted in French. Prerequisite: First semester of French 131, or grade B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours. Mr. Horn.

137. ORAL AND WRITTEN FRENCH.

The aim of this third-year course is to perfect skills in communication both oral and written. In the first semester, particular attention is given to the sounds of French and to its rhythm and melodic patterns. In the second semester, increasing attention is given to grammatical patterns and written French and fluency in the spoken language. Conducted in French. Two regular class periods, one two-hour session and three half-hour periods in the laboratory per week. Prerequisite: Grade of B- or higher in French 12, or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor.

Three semester hours each semester. Mr. King.

241. GENERAL VIEW OF FRENCH LITERATURE.

An interpretation of the main currents of French literature. Each period is studied by concentrating attention on a limited number of works and authors best bringing to focus the characteristics of the period. Conducted in French. Prerequisite: Grade of B- or higher in a third-year course.

Three semester hours each semester. 1968-69, Mr. King; 1969-70, Mr. Hyland.

247b. ADVANCED COMPOSITION AND STYLISTICS. Not offered, 1969-70.

Introduction to the problems of stylistics with a study of selected grammatical topics. Conducted in French. Prerequisite: Grade of B- or higher in French 137, or the equivalent. Offered in alternate years.

248a. EXPOSITORY WRITING AND STYLISTICS.

Introduction to *explications de textes* as a technique for the analysis of literature; study of rhetorical methods and their application, through the writing, in French, of critical essays to enhance appreciation and command of the written language. Conducted in French. Prerequisite: Grade of B- or higher in French 137, or the equivalent. Offered in alternate years.

Three semester hours. Mr. Horn.

251a. THE MIDDLE AGES AND THE RENAISSANCE.†

Emphasis is upon developing an understanding of the philosophical, religious and social attitudes of the Middle Ages and the Renaissance, with due attention to the facts of literary history. Conducted in French. Prerequisite: Grade of B- or higher in French 141, or the equivalent. Offered in alternate years.

Three semester hours. Mr. King.

252a. CLASSICISM.†

Not offered, 1969-70.

A study of outstanding literary works, drawn principally but not exclusively from the age of Louis XIV, to illustrate the esthetic and intellectual nature of the classical point of view as it persists in the French thought of various periods. Conducted in French. Prerequisite: Grade of B- or higher in French 241, or the equivalent. Offered in alternate years.

Three semester hours.

253b. ROMANTICISM AND REALISM.†

Not offered, 1969-70.

A study of outstanding literary works, drawn principally but not exclusively from the late 18th and 19th centuries, to illustrate the esthetic and intellectual climates and the literary techniques generally described as romantic or realistic. Conducted in French. Prerequisite: Grade of B- or higher in French 241, or the equivalent. Offered in alternate years.

Three semester hours.

254b. THE MODERN PERIOD.†

A study of a few outstanding dramatists, novelists and poets to illustrate the diverse literary attitudes characteristic of 20th century French literature. Conducted in French. Prerequisite: Grade of B- or higher in French 241, or the equivalent. Offered in alternate years.

Three semester hours. Mr. Horn.

260. SPECIAL TOPICS IN FRENCH

Staff.

COURSES IN SPANISH

F11. ELEMENTARY.

For beginners or others not yet qualified to enter the intermediate course. Grounding in all four language skills (hearing, speaking, reading, writing) as preparation for subsequent courses conducted in the language. Meets each week: twice in General Session, twice in small Drill Sessions, three half-hour periods of individual work in the language laboratory. Indivisible course.

Three semester hours each semester. Staff.

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†For French 251a, 252a, 253b and 254b a certain historical and analytical perspective such as is provided by French 241 is presupposed. These courses are planned so that they need not be taken in chronological order but may be taken at the student's convenience. Attention is given to the social forces and movements underlying the attitudes whose literary manifestations are under study.

F12. INTERMEDIATE.

Review of the elements and further development of communication skills aimed at a basic literacy. Conducted in Spanish. Meets each week: twice in General Session, twice in small Drill Sessions, and three half-hour periods of individual work in the laboratory. Prerequisite: Spanish 11 or equivalent skill in the language, to be determined by a placement test.

Three semester hours each semester. Staff.

F131. READINGS IN SPANISH AND SPANISH-AMERICAN LITERATURE.

Third-year level. The emphasis in the first semester is on reading as communication, with analysis and practice of the techniques of reading in Spanish; in the second semester, on the understanding of works of high literary quality and broad appeal. Readings from Spain and one American nation, selected with a view to developing insight into the respective cultures. Conducted in Spanish. Prerequisite: Spanish 12 or equivalent skill in the language, to be determined by a placement test.

Three semester hours each semester. Mr. Reid.

F131.1a, F131.1b. MEXICAN THEMES.

Independent study of literature dealing with some theme of Mexican culture, of the student's choosing. Written report. Limited to students who are currently enrolled in, or who have previously completed, the second semester of Spanish 131.

Variable credit. Mr. Reid.

137. ORAL AND WRITTEN SPANISH. Not offered, 1969-70.

Third-year level. A rapid, intensive review of grammar; the elements of phonetics; exercises in composition and pronunciation; conversational practice. Conducted in Spanish. Two regular class periods, one two-hour session, and one to two hours in the laboratory per week. Prerequisite: Grade of B- or higher in Spanish 12 or equivalent skill in the language, to be determined by a placement test. Admission subject to consent of instructor. Offered in alternate years.

Three semester hours each semester. Mr. Barbera.

241. THE LITERATURE OF SPAIN.

A general view of Spanish literature with emphasis on the origins and development of the novel and drama, culminating in the masterworks of the nineteenth century. Attention is given to political and cultural background. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

Three semester hours each semester. Mr. Barbera.

242a. EARLY SPANISH LITERATURE FROM THE POEMA DE MIO CID TO THE CELESTINA. Not offered, 1969-70.

This course will emphasize the nature of epic poetry, the first manifestation of "realism" in the literature of the Middle Ages, and will culminate in the hybrid masterpiece, the *Celestina,* a combination of novel and drama, unique in the history of European literature. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.

Three semester hours. Mr. Barbera.

243a. CERVANTES.
This course will concentrate upon *Don Quixote* with excursions into other writings of Cervantes illustrating the changes in his literary development. Cervantes' debt to previous literary works will be studied. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.
Three semester hours each semester. Mr. Barbera.

244b. THE DRAMA OF THE SIGLO DE ORO. Not offered, 1969-70.
Besides studying the major figures such as Lope de Vega, Tirso de Molina, Alarcón an Calderón de la Barca, there will be some study of the origins of the drama in Spain. Conducted in Spanish. Prerequisite: Grade of B- or higher in a third-year course. Offered in alternate years.
Three semester hours. Mr. Barbera.

245b. THE MODERN NOVEL.
A number of 19th century novels will be read. The 20th century will be represented by such outstanding novelists as Galdós (who bridges the 19th and 20th centuries), Unamuno, Valle-Inclán and Baroja. Conducted in Spanish. Prerequisite: Grade of B- or higher in Spanish 131 or 137, or the equivalent. Offered in alternate years.
Three semester hours. Mr. Barbera.

260. SPECIAL TOPICS IN SPANISH. Staff.

COURSES IN ROMANCE LANGUAGES

201. HONORS: JUNIOR YEAR.
Variable credit, normally three semester hours each semester. Staff.

202. HONORS: SENIOR YEAR.
Variable credit, normally three semester hours each semester. Staff.

260. SPECIAL TOPICS IN ROMANCE LANGUAGES. Staff.

270. (ALSO DESIGNATED EDUCATION 270). THE TEACHING OF ROMANCE LANGUAGES.
A practicum course for Teaching Assistant Scholars serving as first-year Departmental Interns in Romance Languages. A weekly lecture and readings to provide a basis in the theory of applied linguistics; directed teaching in the language courses; and a semimonthly seminar for discussion of the relation between theory and practice, as well as other subjects of professional concern.
Three semester hours each semester. Mr. Reid and Staff.

271. (ALSO DESIGNATED EDUCATION 271). THE TEACHING OF ROMANCE LANGUAGES — ADVANCED.
A continuation of course 270, for second-year Interns.
Three semester hours each semester. Mr. Reid and Staff.

280a. }
280b. } RESEARCH.

Individual direction of departmental interns in their professional projects.
Variable credit. Staff.

Russian

DEPARTMENT FACULTY

Larisa Sorokin, M.A., *Assistant Professor of Russian*

UNDERGRADUATE PROGRAM

Courses are offered in Russian language and literature to provide a competent reading and speaking knowledge of the language essential for carrying on advanced study in many fields, to fulfill the elective requirement for the degree of Bachelor of Arts and to provide an introduction to Russian civilization.

COURSES

F11. INTRODUCTORY RUSSIAN.
An introduction to the written and spoken language. Four class periods and three laboratory sessions per week. Indivisible course.
Four semester hours each semester. Mrs. Sorokin.

F12. INTERMEDIATE RUSSIAN.
Advanced Russian grammar. Continued emphasis upon reading and conversation. Three class periods, one supervised drill session, and three laboratory sessions per week. Open to qualified freshmen.
Four semester hours each semester. Mrs. Sorokin.

13. ADVANCED RUSSIAN.
Intensive reading of contemporary and literary sources. Advanced composition and conversation.
Three semester hours each semester. Mrs. Sorokin.

130. LITERARY ANALYSIS OF SELECTED WORKS OF RUSSIAN LITERATURE.
In Russian. Prerequisite: Russian 13 or equivalent with permission of the instructor.
Three semester hours each semester. Mrs. Sorokin.

180. SOVIET LITERATURE. See Cooperative Programs.
In translation. Poems, plays, and novels of selected Soviet authors considered as works of literary art and as illustration of the social, economic, and political condition of the period.
Three semester hours each semester. Mrs. Sorokin.

COOPERATIVE PROGRAMS

The following courses in Russian Literature are available to Clark students at the College of the Holy Cross:

173. DOSTOEVSKY. Fall 1969.
A monographic course conducted in English. Among the major works of Dostoevsky which will be studied are *Crime and Punishment, The Notes from the Underground,* the *Idiot, The Possessed* and the *Brothers Karamazov.*
Three credit hours. Mrs. Foster.

181. SOVIET LITERATURE. Fall 1969.

In translation. Poems, plays, novels of selected Soviet authors, representative of the Soviet literary scene are discussed as illustrations of the social, economic and political conditions of the period.

Three credit hours. Mr. Sorokin.

RUSSIAN LITERATURE FROM 11TH TO THE 18TH CENTURY. Spring 1970.

In translation. A literary-historical survey of medieval and post-medieval works of Russian literature, religious as well as secular. The course will include discussion of the Igor Tale, the Don Tale, the Petrine literature, the influences of the West and the evolution of Russian literary language and various genres in the 18th century.

Three credit hours. Mrs. Foster.

TOLSTOI. Spring 1970.

A monographic course, conducted in English. Discussed are Tolstoj's early works as well as the major novels *War and Peace, Anna Karenina, The Resurrection, Death of Ivan Ilych* and a number of post-conversion works.

Three credit hours. Mr. Sorokin.

1717101. GOLDEN AGE OF RUSSIAN LITERATURE. Offered in 1970-71.

Conducted in English. Study of the Russian Novel including works of Lermontov, Gogol, Turgenev, Tolstoi, Dostoevsky and Chekhov.

Three semester hours each semester. Staff.

Sociology

DEPARTMENT FACULTY

William C. Kvaraceus, Ph.D., *Professor of Education and Sociology*
Howard R. Stanton, Ph.D., *Professor of Sociology*
Frederick W. Killian, LL.B., *Associate Professor of Sociology*
Willard D. Callender, Jr., Ph.D., *Assistant Professor of Sociology*
Stanford N. Gerber, Ph.D., *Assistant Professor of Social Anthropology and Sociology*
Christopher J. Hewitt, M.A., *Assistant Professor of Sociology*
Mario Montano, Ph.D., *Assistant Professor of Sociology*
Anselme Remy, M.A., *Visiting Lecturer in Anthropology*

UNDERGRADUATE PROGRAM

An undergraduate major in sociology is designed to provide the student with an understanding of the intellectual tradition which has focused on description and explanation of human society, its structure, organization, and process. Emphasis is on both theoretical aspects of society in general and specifically the nature of American society. Requirements for a major in sociology consist of 24 semester hours in sociology, of which six must be from 100 level courses and six from an advanced theory course (Sociology 290 or its equivalent). In addition, 18 semester hours must be in related fields, which include all courses in economics, government, history, international relations, linguistics, philosophy, psychology; educational psychology; educational sociology; and cultural geography. All students are encouraged to take 100 level courses during their freshman and sophomore years, since enrollment in each course is limited to 50 students and preference is given to freshmen and sophomores. Six semester hours of 100 level courses are the perequisite for all 200 level courses.

In addition, at least 36 semester hours of a major's program must be selected from other than the related fields listed above.

An honors program of independent study and research is available to qualified upperclassmen. Ordinarily a candidate will begin honors work in the second semester of the junior year by enrolling in Sociology 28.

GRADUATE PROGRAM

Graduate study leading to the Master of Arts degree is offered. The program emphasizes theory and research methods and the following substantive areas: law and society, community and urban society. Field research as part of the thesis preparation is normally done.

All graduate students are required to have teaching experience as part of their M.A. program. This may be accomplished by assisting in one or more of the 100 level courses.

In addition to the courses listed below, a number of junior-senior level courses in sociology are being offered at Assumption College and the College of the Holy Cross. These courses are open only to junior and senior sociology majors. Enrollment in these courses is limited and students who are interested are urged to enroll for them early.

COURSES

Soc. F111a. BLACK CULTURES AND SOCIETIES IN THE NEW WORLD.

An analysis of the history and structure of black societies in the New World. Cross-cultural data drawn from the Caribbean, Latin America and the United States will be used to explain the similarities and differences among the black population of the New World.

Three semester hours. Mr. Remy.

F112b. SEMINAR: POLITICAL MOVEMENTS IN BLACK SOCIETIES OF THE NEW WORLD.

A continuation of Black Cultures and Societies in the New World, with emphasis on political conflicts. Prerequisite: Soc. F111a or consent of the instructor.

Three semester hours. Mr. Remy.

F113b. SOCIAL THEORY IN A NUTSHELL.

A synthetic presentation of social theory, based on those generalizations which are widely accepted and which can form a coherent body of scientific thought. This material sacrifices the complexity of detailed theoretical issues in separate social science disciplines in order to emphasize an underlying view of human nature and its relevance to current issues. The course will challenge preconceptions about society.

Three semester hours. Mr. Stanton.

F115b. PERSPECTIVES ON MODERN AMERICAN SOCIETY.

A study of the major features of industrial society: the family, religion, politics, the economy and social stratification. Consideration of these topics will be from a comparative perspective, and also show the interdependence of the various institutions with one another.

Three semester hours. Mr. Hewitt.

F12a. SOCIAL ANTHROPOLOGY.

An analysis of primitive society with emphasis on social structure, including religion, kinship and economics. The relation between culture and personality and the processes of social change in the primitive world are explored.

Three semester hours. Mr. Gerber.

F14b. SOCIAL ORGANIZATION.

An examination of selected models for studying the organization of groups, institutions, communities, and society. Attention will be given to the ways social systems evolve, maintain themselves, and change. Special emphasis will be given to the views of social organization developed by Durkheim, Freud, Mead, Malinowski, Merton, and Goffman.

Three semester hours. Mr. Callender.

F145b. COMPARATIVE SOCIAL INSTITUTIONS.

Cultural variations of selected institutions and social groupings. Data are drawn from such regions as the Caribbean, Melanesia, Micronesia, Russia, China, Africa, and the United States.

Three semester hours. Mr. Gerber.

F165a. SOCIAL MOVEMENTS.

Social movements in the sixties. The course may be broken down into study groups on specific social movements.

Three semester hours. Mr. Montano.

F17a. AMERICAN MINORITY GROUPS. Not offered, 1969-70.

Analysis of the major racial, ethnic and religious minorities in the U.S.A. Their structures, conflicts and changing relations with the dominant American culture. Social effects of alternative policies and strategies in contemporary minority group relations.

Three semester hours. Mr. Gerber.

F175b. SOCIOLOGY OF CONFLICT.

Is there a viable *general* theory of conflict? Parsons and functionalism vs. "the new sociology"; value-free sociology vs. "radical" sociology; social systems approach vs. historical specific analysis, social harmony vs. positive and negative social conflict.

Three semester hours. Mr. Montano.

F18a. DEVIANT BEHAVIOR.

The origins and sources of socially disapproved behavior in human groups, particularly societies. Study of the major types of deviant behavior in the United States and the processes by which they are defined, generated, and controlled.

Three semester hours. Mr. Callender.

F19a. SOCIAL STRATIFICATION.

An analysis of the major dimensions of social stratification in contemporary society. Economic class, social status, power, class consciousness, social mobility and the consequences of class differences.

Three semester hours. Mr. Hewitt.

20a. FORMAL ORGANIZATIONS.

An examination of large-scale organizations as social systems. Attention will be given to the internal problems of decision-making, authority, power, and morale and to the external problems of resource allocation and environmental legitimacy. Emphasis will also be placed on the positive and negative consequences of formal organizations within

the context of modern society. Prerequisite: In addition to the ususal prerequisite, consent of the instructor.
Three semester hours. Mr. Callender.

22a. ANTHROPOLOGICAL FIELD METHODS.

A seminar on field work methods. The role of the participant-observer. Recording cohesion and disintegration. Students obtain supervised field experience.
Four semester hours. Mr. Gerber.

220a. POWER AND DECISION-MAKING.

A theoretical and empirical consideration of the nature of power in modern society. The seminar will examine the policy-making process in the United States and Britain with reference to a variety of national issues.
Three semester hours. Mr. Hewitt.

222a. SEMINAR IN SOCIAL POLICY.

A review of social policy options, as developed on local, national and international levels. Examination of this material will stress the effects of social services (health, education, employment, housing, welfare) on societal forms and processes. These effects will be examined from a social planning (fiscal, administrative) as well as a social action (power) point of view. Prerequisite: In addition to the usual prerequisite, consent of the instructor.
Three semester hours. Mr. Stanton.

235b. SEMINAR ON THE DIVISION OF LABOR.

Theories on the division of labor. Manual and intellectual labor; productive and unproductive labor; workers and students.
Three semester hours. Mr. Montano.

25a. SOCIAL CONTROL, LAW AND SOCIETY.

Law and the social order; power and social control. The basis and theory of the legal order and legal institutions; change and current legal problems. Prerequisite: In addition to the usual prerequisite, consent of the instructor.
Four semester hours. Mr.Killian.

26b. URBAN SOCIAL STRUCTURE.

An examination of the structure of urban, suburban, and metropolitan communities. Urbanism will be discussed as a historical trend, as a way of life, and as a problem-generating trend in modern societies. Special attention will be given to the problems of urban and metropolitan planning in American cities today. Prerequisite: In addition to the usual prerequisite, consent of the instructor.
Three semester hours. Mr. Callender.

27b. URBAN SOCIAL SERVICE SYSTEMS. Not offered, 1969-70.

An organizational analysis of selected social service agencies — their histories, goals, philosophies, structures, and programs — viewed in relation to the community as a social system and urban social problems. Prerequisite: In addition to the usual prerequisite, consent of the instructor.
Three semester hours. Mr. Callender.

275a. THE ETHNIC COMMUNITY. Not offered, 1969-70.

An intensive investigation of the structure of ethnic communities with consideration of customs, life cycle, folk medicine, religion, and language.
Three semester hours. Mr. Gerber.

276b. BLACK CULTURES OF THE CARIBBEAN.
A seminar-type course in which an intensive survey is made of black cultures of the Caribbean. Special attention will be paid to problems of development and change in the Eastern Caribbean.
Three semester hours. Mr. Gerber.

28. HONORS.
Three semester hours. Staff.

285. READINGS IN SOCIOLOGY.
One to three semester hours. Staff.

290a. CLASSICAL SOCIOLOGICAL THEORY.
Idealist, positivist, and Marxist approaches. Marx, Weber, and Durkheim on bureaucracy.
Three semester hours. Mr. Montano.

290b. CONTEMPORARY SOCIOLOGICAL THEORY.
An examination of the current major sociological theories and controversies. The work of Parsons, Merton, Homans, Blau, Dahrendorf, and such topics as functionalism, the nature of the social system, reductionism, and conflict theory.
Three semester hours. Mr. Hewitt.

291a. SEMINAR: SUICIDE. Not offered, 1969-70.
A detailed examination of the major sociological literature dealing with suicide. Emphasis is on the classical studies and theoretical formulations and recent studies. Prerequisite: In addition to the usual prerequisite, consent of the instructor.
Three semester hours. Mr. Callender.

293a. DEATH AND SOCIAL CONTROL. Not offered, 1969-70.
An examination of how assumptions about life and death shape the structure of personal and group action in selected societies. The course will focus on the relationship of death assumptions to socially structured motivational concepts (e.g. salvation, career, success, nirvana). Attention will also be given to general cognitive structures such as space and time and to the uses of death in everyday activity. Prerequisite: In addition to the usual prerequisite, consent of the instructor.
Three semester hours. Mr. Callender.

36. READINGS IN SOCIAL ANTHROPOLOGY.
One to three semester hours. Staff.

37. READINGS IN SOCIOLOGY.
One to three semester hours. Staff.

38. RESEARCH.
One to three semester hours. Staff.

380. RESEARCH SEMINAR.
Two semester hours. Staff.

39. THESIS.
Three semester hours. Staff.

390. THESIS SEMINAR.
Two semester hours. Staff.

Theatre Art

PARTICIPATING FACULTY

Phillip A. Graneto, M.F.A., *Lecturer in Theatre Art; Designer/Technical Director, Fenwick Theatre, College of the Holy Cross.*

Edward J. Herson, M.A., *Lecturer in Theatre Art; Director, Fenwick Theatre, College of the Holy Cross.*

Bernard J. McInerney, M.F.A., *Instructor in Theatre Art, College of the Holy Cross.*

Neil R. Schroeder, Ph.D., *Associate Professor of English, Clark University.*

William C. Sigalis, B.A., *Affiliate; Director, Clark University Players Society.*

UNDERGRADUATE PROGRAMS

Begun in the academic year 1968-69, the program in Theatre Art is offered through the cooperation of Clark University, the College of the Holy Cross, and Assumption College. It is designed to give the student both practical and scholarly experience in all phases of theatre, to develop theatre artists with a sound humanistic education, and to prepare them for graduate training in educational and professional theatre. Courses are open to all qualified undergraduates who are willing to devote the time and energy which are necessary for their completion.

In many cases, and this applies especially to Theatre Art majors, students who take courses in theatre will be expected as part of their course work to participate in productions by the Clark University Players Society and by the Fenwick Theatre at Holy Cross. Fenwick Theatre has enlisted a semi-professional company, Entr'Actors Guild, Inc., to act and work with students in producing the major season of five or six plays. Consequently, the annual season in Fenwick Theatre serves several purposes. It provides the students and residents of the Worcester area with theatrical productions of high quality. It also serves as a laboratory where students of Theatre Art and other interested persons may learn the arts and skills of the theatre. Finally, it is a showcase where students of the theatre, after they have developed sufficiently through their course work, may practice their art for a discerning public.

All students and faculty of the colleges participating in the program (Clark, Holy Cross, and Assumption) may apply for acting and technical positions in plays of the annual season at Fenwick Theatre. Other persons may do so by permission of Mr. Edward Herson, Director of the Fenwick Theatre, and the director of the play for which they apply.

Registration in any course in Theatre Art may be made only by permission of the instructor. Clark students who wish to take courses in the field should first apply to Mr. Schroeder of the Department of English at Clark. Entering freshmen who plan to take courses should see Mr. Schroeder before they register for their first year.

Many of the courses in the program will be offered on other campuses. In most cases, Clark students will be expected to supply their own transportation.

The Theatre Art major is designed around a core curriculum of basic courses with two sequences of advanced courses – one for potential actors and one for potential stage designers. Within the acting sequence allowance is made for qualified students to choose two semester courses in advanced directing.

Core Curriculum. All Theatre Art majors must take the following courses, preferably before their junior year: Theatre Art 10, 12, 13, and 14. In addition, all majors must take at least two of the following: Theatre Art 151, 152, and 153.

Advanced Courses: Acting Sequence. Normally, acting majors will complete their program by taking four additional acting courses, usually Theatre Art 11, 113, 115, and 116.

Especially qualified students who wish to gain training in advanced directing may, with the permission of the instructor, substitute Theatre Art 145 and 146 for Theatre Art 115 and 116, usually in their junior and senior years.

Advanced Courses: Design Sequence. Normally, design majors will complete their program by taking Theatre Art 130, 133, and 134. It should be noted that there is a Fine Arts prerequisite for these courses which may be taken at any qualified school. This prerequisite will not be included among the student's major courses, but it will be included among his related courses. In execeptional cases the prerequisite may be waived.

Related Courses. All Theatre Art majors must take at least twenty hours of courses in related fields as follows:

1. Twelve or more hours of dramatic literature. All majors should take as many courses in dramatic literature as possible.
2. Three hours, preferably more, in history of art.
3. Any selection from the following: English, comparative literature, philosophy, fine arts, music, and in some cases, certain courses in psychology as approved by the student's adviser.

Courses Outside the Major and Related Fields. All Theatre Art majors must take at least thirty-six hours of courses outside the major and related fields as enumerated above. All students who plan to pursue graduate study in the theatre are advised to gain proficiency in at least one, and preferably two, modern foreign languages.

Any student who plans to go on to graduate or professional work in theatre should acquire as much professional experience as possible through participation in summer stock or similar activities.

COURSES

F10a. BASIC ACTING SKILLS I.

Study and intensive practice in the basic techniques of producing good voice and speech. Practice in the proper formation of the sounds of English and correction of regional accent. Laboratory in stage movement. Taught at Holy Cross.

Three semester hours. Mr. McInerney.

F11b. BASIC ACTING SKILLS II.

Further development of the techniques learned in Theatre Art 10a. Elementary work in the interpretation of a role. Taught at Holy Cross. Prerequisite: Theatre Art 10a.

Three semester hours. Mr. McInerney.

F12a. BASIC TECHNICAL THEATRE PRACTICE.

Classroom instruction in the theories and techniques of the building, painting, and lighting of stage settings; the organization and operation of production crews; and the fundamentals of make-up. Laboratory hours to be arranged. Taught at Holy Cross.

Three semester hours. Mr. Graneto.

F13a. INTRODUCTION TO STAGE DESIGN: THEORY.
A course intended to acquaint the general student with the basic steps involved in the creation of stage settings, including a discussion of design methods such as ground plan, compositional elevation, mechanical perspective, color theory, and stage lighting. Taught at Holy Cross.
Three semester hours. Mr. Graneto.

F14a. INTRODUCTION TO PLAY DIRECTION.
Study of the writings, both theoretical and practical, of prominent directors, followed by practice in classroom exercises or laboratory studio productions of the basic techniques of play selection, casting, scheduling and conducting rehearsals, composition, picturization, movement, rhythm, and pantomimic dramatization. Taught at Holy Cross.
Three semester hours. Mr. Herson.

F111b. ORAL INTERPRETATION OF LITERATURE. Not offered, 1969-70.
A course in the theory and practice of interpreting the meaning of the printed word through development of skill in the oral reading of poetry and drama. Taught at Holy Cross.
Three semester hours. Mr. McInerney.

F112b. IMPROVISATIONS FOR THE THEATRE. Not offered, 1969-70.
A graduated system of problems and theatre games designed to train the student to free himself for concentration and spontaneous effort to create a situation imaginatively and to play a role in it. Taught at Holy Cross.
Three semester hours. Mr. McInerney.

113a. STYLES OF ACTING.
Analysis of the practice of the actor's art from the Greeks to the present and of the historical, social, and aesthetic causes of the various styles. Each student will be required to perform, and possibly direct, in each of the principal styles as well as submit papers on a chosen specialty. Taught at Holy Cross. Prerequisite: Theatre Art 10a and 11b.
Three semester hours. Mr. McInerney.

115b. SCENE STUDY I.
Practice to the level of class performance of roles in scenes and one-act plays. Assigned research, and analysis of a major role scene by scene. Taught at Holy Cross. Prerequisite: Theatre Art 11b, 113a, and consent of instructor.
Three semester hours. Mr. McInerney.

116b. SCENE STUDY II. Not offered, 1969-70.
Preparation of scenes for class and/or laboratory performance and criticism. Each student will keep a written record of the materials and techniques used in preparing the roles he plays and a critical diary of rehearsals, performances, and class evaluations of performance. Taught at Holy Cross. Prerequisite: Theatre Art 115b and consent of instructor.
Three semester hours. Mr. McInerney.

F130b. INTRODUCTION TO STAGE DESIGN: TECHNIQUE.

An introductory course exclusively for students who have a strong interest in the visual aspects of production and are planning to continue the study of stage design. The student will be expected to master the fundamentals of mechanical perspective and other scenographic techniques such as ground plans, working drawings, and light plots for the stage. Taught at Holy Cross. Prerequisite: Theatre Art 13a; at least one course in drawing and painting, which may be taken simultaneously with the course, and/or submission of sketches or similar materials which demonstrate some talent in the graphic arts.

Three semester hours. Mr. Graneto.

133b. HISTORICAL STYLES OF STAGE DESIGN.

Problems will be selected classics of dramatic literature representing important periods in theatre history. The student will be expected to expand his knowledge of the theatre, art, and architecture of these periods and, from that knowledge, evolve a stage design for a modern production of each play assigned. Taught at Holy Cross. Prerequisite: Theatre Art 130b, one semester of art history, and one semester of theatre history.

Three semester hours. Mr. Graneto.

134b. THEATRICAL STYLES OF STAGE DESIGN.

Not offered, 1969-70.

Problems will include different types of theatrical entertainment such as opera, ballet, modern dance, musical comedy, and circus. Projects from this course should exhibit the designer's ability and versatility and provide a portfolio of sketches required for admission to graduate study in theatrical design. Taught at Holy Cross. Prerequisite: Theatre Art 130b.

Three semester hours. Mr. Graneto.

145a. ADVANCED PLAY DIRECTION I.

This course will stress the creative relationship of the director to the actor. Readings in anecdotal and diary accounts of rehearsals and productions. Laboratory studio production of at least one one-act play or an equivalent scene from a longer play. Taught at Holy Cross. Open to seniors and, in exceptional cases, juniors. Prerequisite: Theatre Art 14a and consent of instructor.

Three semester hours. Mr. Herson.

146b. ADVANCED PLAY DIRECTION II.

Facility in fundamentals and in director-actor relationship is developed. Laboratory studio production of at least one one-act play or a long scene more complex than those done in Theatre Art 145a. A complete prompt book will be required for each studio production. Taught at Holy Cross. Open to seniors and, in exceptional cases, juniors. Prerequisite: Theatre Art 145a and consent of instructor.

Three semester hours. Mr. Herson.

F151a. THEATRE HISTORY AND CRITICISM I: HISTORY OF THEATRE ARCHITECTURE AND SCENE DESIGN.

Not offered, 1969-70.

A study of types of theatres, techniques of theatre architecture, and the methods, techniques, and results of stage design and costume in their historical context from the Greeks to the present. Taught at Clark.

Three semester hours. Mr. Schroeder.

F152b. THEATRE HISTORY AND CRITICISM II: HISTORY OF PRODUCTION METHODS AND ACTING.

A survey of acting, directing, and production techniques and their interaction with the audience from the Greeks to the present. The course will also study the emergence of the national theatres of Western civilization and their historical and cultural significance. Taught at Clark.

Three semester hours. Mr. Schroeder.

F153a. THEATRE HISTORY AND CRITICISM III: HISTORICAL STUDIES IN WORLD DRAMA CRITICISM.

A survey of the major eras of dramatic literature and criticism in Western civilization which includes a study of the major theatrical genres (drama, mime, ballet, opera, etc.) and their aesthetic and cultural significance. Taught at Clark.

Three semester hours. Mr. Schroeder.

165a. FRENCH THEATRE PRODUCTION I.

A course designed to provide direct experience of the theatrical synthesis within which the play and the actor operate. Study of the leading theories of the theatre from Diderot to Brecht. Techniques of stage presentation, including directing, acting, stage design, and make-up. Scene study leading to the presentation of scenes from five French plays in various modes. Lab. fee: $10.00. Taught at Assumption. Prerequisite: speaking knowledge of French and consent of instructor.

Three semester hours. Mr. Plasse.

166b. FRENCH THEATRE PRODUCTION II.

Brief history of the great directors and actors of the French stage from Les Basochiens to Jean-Louis Barrault. Historical and critical study in depth of two French plays to culminate in their production. Lab. fee: $10.00. Taught at Assumption. Prerequisite: speaking knowledge of French and Theatre Art 165a or consent of instructor.

Three semester hours. Mr. Plasse.

DIRECTORIES

THE FACULTY

Members of the faculty and officers of instruction for 1969-70 are listed alphabetically with their titles, degrees and years at Clark University. Persons no longer on the faculty but who served during the previous year are included also.

President

FREDERICK HERBERT JACKSON, Ph.D., LL.D., President; A.B., Brown University, 1941; M.A., University of Pennsylvania, 1948; Ph.D., 1950; LL.D., Brown University, 1968. (1967-)

Emeriti

HOWARD B. JEFFERSON, Ph.D., LL.D., L.H.D., Litt.D., President, Emeritus; A.B., Denison University, 1923; Ph.D., Yale University, 1929; LL.D., Denison University, 1948, Hillsdale College, 1952, Northwestern University, 1958; L.H.D., Colgate University, 1951, Assumption College, 1956; Litt.D., College of the Holy Cross, 1962; L.H.D., Clark University, 1967; LL.D., Emerson College, 1968. (1946-67)

SAMUEL J. BRANDENBURG, Ph.D., Professor of Economics and Sociology, Emeritus. (1923-50)

JESSE LUNT BULLOCK, Ph.D., Professor of Chemistry, Emeritus. (1926-59)

GUY HARVEY BURNHAM, A.M., Instructor in Geography and Cartographer, Emeritus. (1922-66)

LYDIA PERRY COLBY, B.S., Registrar, Emeritus. (1932-66)

ROBERT STANLEY ILLINGWORTH, A.M., Ed.M., Professor of Speech and Drama, Emeritus. (1931-58)

VERNON JONES, Ph.D., Professor of Educational Psychology, Emeritus. (1926-68)

HENRY DONALDSON JORDAN, Ph.D., L.H.D., Professor of English History, Emeritus. (1931-1967)

DWIGHT ERWIN LEE, Ph.D., L.H.D., Jacob and Frances Hiatt Professor of European History, Dean of the Graduate School, Emeritus. (1927-1967)

JAMES ACKLEY MAXWELL, Ph.D., L.H.D., Professor of Economics, Emeritus. (1924-1967)

RAYMOND EDWARD MURPHY, Ph.D., Professor of Economic Geography, Emeritus. (1946-68)

PERCY MARTIN ROOPE, Ph.D., Professor of Physics, Emeritus. (1921-62)

SAMUEL VAN VALKENBURG, Ph.D., Professor of Geography, Emeritus. (1926-29, 1932-62)

Faculty and Officers of Instruction

VERNON AHMADJIAN, Ph.D., Professor of Botany, Associate Dean of the Graduate School. A.B., Clark University, 1952; A.M., 1956; Ph.D., Harvard University, 1960. (1959-68; 1969-)

HARRY C. ALLEN, JR., Ph.D., Professor of Chemistry, Chemistry Department Chairman. B.S., Northeastern University, 1948; Sc.M., Brown University, 1949; Ph.D., University of Washington, 1951. (1969-)

ALFRED ANDEREAU, Ph.D., Assistant Professor of German. Ph.D., University of Zurich, 1964. (1968-)

JEREMY ANDERSON, Ph.D., Associate Professor of Geography. A.B., Yale University, 1956; M.A., University of Washington, 1959; Ph.D., 1964. (1966-)

KARL OSCAR EMANUEL ANDERSON, Ph.D., Professor of English. A.B., Harvard University, 1927; A.M., 1928; Ph.D., 1942. (1945-)

ROY STUART ANDERSON, Ph.D., Professor of Physics, Physics Department Chairman. A.B., Clark University, 1943; A.M., Dartmouth College, 1948; Ph.D., Duke University, 1951. (1960-)

KARL JOHN RICHARD ARNDT, Ph.D., Professor of German. A.M., Washington University, 1928; Ph.D., The Johns Hopkins University, 1933. (1950-)

DONALD BACON, M.A., Lecturer in English. B.A., Providence College, 1960; M.A. Clark University, 1968. (1969-)

ROBERT WILLIAM BAKER, Ph.D., Professor of Psychology. A.B., Hobart College, 1947; Ph.D., Clark University, 1953. (1954-)

GEORGE ANTHONY BALKO, JR., M.B.A., Chairman, Business Administration Program. M.E., Stevens Institute of Technology, 1947; M.B.A., New York University, 1952. (1956-)

ROBERT A. BARAKAT, M.A., Assistant Professor of English. B.A., Suffolk University, 1961; M.A., University of Texas at El Paso, 1964. (1968-)

RAYMOND EDMOND BARBERA, Ph.D., Professor of Romance Languages. A.B., Brooklyn College, 1947; A.M., University of Arizona, 1948; Doctor en Letras, Universidad Nacional de Mexico, 1949; Ph.D., University of Wisconsin, 1958. (1953-)

CLAUDE WILLIS BARLOW, Ph.D., Professor of Classics. A.B., Amherst College, 1928; A.M., Indiana University, 1930; Ph.D., Yale University, 1935. (1947-)

STEVEN BARON, Ph.D., Assistant Professor of Mathematics. B.A., McGill University, 1959; M.S. Rensselaer Polytechnic Institute, 1962; Ph.D., McGill University, 1967. (1968-)

TILTON MARSHALL BARRON, B.L.S., Librarian. A.B., Colorado College, 1937; B.L.S., Columbia University School of Library Service, 1940. (1954-)

THOMAS C. BARROW, Ph.D., Professor of American History. B.A., Harvard University, 1952; M.A., 1954; Ph.D., 1961. (1967-)

MELVIN BARTON, Ph.D., Consultant to Psychological Services Center. B.A., City College of New York, 1957; M.A., 1959; Ph.D., Clark University, 1964. (1965-)

LINDA M. B. BARTOSHUK, Ph.D., Assistant Professor (affiliate) of Physiology. B.A., Carleton College, 1960; Sc.M., Brown University, 1963; Ph.D., 1965. (1967-)

JAMES FRANKLIN BEARD, JR., Ph.D., Professor of English. A.B., Columbia College, 1940; A.M., Columbia University, 1941; Ph.D., Princeton University, 1949. (1955-)

ROBERT NELSON BECK, Ph.D., Professor of Philosophy, Philosophy Department Chairman. A.B., Clark University, 1947; A.M., Boston University, 1948; Ph.D., 1950. (1948-67; 1968-)

CLEMENS E. BENDA, M.D., Professor (affiliate) of Psychology. M.D., University of Berlin, 1922. (1958-)

LEONARD BERRY, M.Sc., Professor of Geography. B.Sc., University of Bristol, 1951; M.Sc., 1956. (1969-)

ROGER BIBACE, Ph.D., Associate Professor of Clinical Psychology, Director of Psychological Services Center. A.B., University of British Columbia, 1949; Ph.D., Clark University, 1957. (1957-)

GEORGE ATHAN BILLIAS, Ph.D., Professor of American History. A.B., Bates College, 1948; A.M., Columbia University, 1949; Ph.D., 1958. (1962-)

ARTHUR J. BINDMAN, Ph.D., Lecturer in Psychology. A.B., Harvard University, 1948; M.A., Boston University, 1949; Ph.D., 1955. (1966-)

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JACQUES VONÈCHE, Ph.D., Assistant Professor of Psychology. A.B., L'Institut Supérieur; M.A., University of Louvain (Belgium), Institute of Psychology, 1960; Ph.D., 1966. (1968-)

SEYMOUR WAPNER, Ph.D., G. Stanley Hall Professor of Genetic Psychology, Psychology Department Chairman. A.B., New York University, 1939; A.M., University of Michigan, 1940; Ph.D., 1943. (1948-)

HENRY JOHN WARMAN, Ph.D., Professor of Geography. B.S. in Ed., Bloomsburg State Teachers College, 1932; Ed.M., Temple University, 1938; Ph.D., Clark University, 1945. (1943-)

WEN-YANG WEN, Ph.D., Associate Professor of Chemistry. B.S., National Taiwan University, 1953; Ph.D., University of Pittsburgh, 1958. (1962-)

JEFFERSON A. WHITE, Ph.D., Associate Professor of Philosophy, Dean of the College. B.A., Baylor University, 1952; B.D., Yale University, 1957; A.M., 1960; Ph.D., 1964. (1961-)

MORTON WIENER, Ph.D., Professor of Psychology. B.S., College of the City of New York, 1949; M.S., 1950; Ph.D., University of Rochester, 1953. (1957-)

CLODIUS WILLIS, M.A.T., Assistant Professor of Romance Languages. A.B., Amherst College, 1959; M.A.T., Harvard University, 1963. (1968-)

DONALD E. WISE, M.A., Assistant Professor of Economics. B.A., University of California, Los Angeles, 1966. (1969-)

JOACHIM F. WOHLWILL, Ph.D., Professor of Psychology. A.B., Harvard College, 1949; Ph.D., University of California, 1957. (1958-)

PETER H. WOLFF, M.D., Lecturer in Psychology. M.D., University of Chicago, 1950. (1961-)

WALTER E. WRIGHT, M.A., Assistant Professor of Philosophy. B.A., Yale University, 1965; M.A., Vanderbilt University, 1967. (1968-)

WILLIAM WRZESIAN, M.M., Assistant Professor (affiliate) of Clarinet. B.M., New England Conservatory of Music; M.M. (1968-)

ALLEN M. ZWICKEL, Ph.D., Associate Professor of Chemistry. A.B., Cornell University, 1956; Ph.D., University of Chicago, 1959. (1961-)

RESEARCH ASSOCIATES, 1968-1969

NAOHIRO AI, Ph.D., Department of Biology. B.S., Tokyo Kyoiku University, 1955; M.S., 1958; Ph.D., 1966.

A. HARVEY BAKER, Ph.D., Department of Psychology. B.A., Harvard University, 1958; M.A., 1959; Ph.D., Clark University, 1968.

DUANE D. BAUMANN, Ph.D., Department of Geography. B.S., Illinois State University, 1962; M.S., 1963; Ph.D., Clark University, 1968.

WARD J. CROMER, Ph.D., Department of Biology. A.B., Oberlin College, 1962; M.A., Clark University, 1964; Ph.D., 1968.

THEODORE P. GANNUTZ, Ph.D., Department of Biology. B.A., University of Connecticut, 1963; Ph.D. Clark University, 1968.

DAVID A. F. MARSHALL, Ph.D., Department of Biology. B.A., University of Nevada, 1959; M.S., University of Washington, 1961; Ph.D., Duke University, 1965.

KOICHIRO MIYAJIMA, Ph.D., Department of Chemistry. B.S., Kyoto, 1958; M.S., 1960; Ph.D., 1964.

THOMAS L. ROBERTS, Ph.D., Department of Biology. A.B., Talladega College, 1957; M.S. Trinity University, (San Antonio, Texas) , 1961; Ph.D., Clark University, 1965.

DVORA ROSENBACH, Ph.D., Department of Psychology. B.A., Bar-Ilan University (Israel) , 1961; M.A., Teacher's College, Columbia University, 1964 and Clark University, 1965; Ph.D., Clark University, 1968.

RODREIQUE M. SUTHERLAND, Ph.D., Department of Biology. B.S., Providence College, 1940; M.A.T., Brown University, 1961; Ph.D., Clark University, 1967.

ACADEMIC BOARDS AND COMMITTEES, 1968-69

The President is an *ex officio* member of all boards and committees

President's Cabinet	Jackson, *Chairman;* Campbell, *secretary;* S. Cohen, Haas, Hyde, Lee, Riorden, M. Savage and Topkin
Personnel and Organization	Jackson, *chairman;* Baker, *vice-chairman and secretary;* R. Anderson, Beck, Campbell, Carter, S. Cohen, Hayden, and Kaplan
Administrative	Campbell, *chairman;* Corcoran, Goodney, R. Kaplan*, Pierson, Plaisted, Riorden, M. Savage, Topkin and Walter*
Graduate Board	Jackson, *chairman;* R. Anderson, Borg, Brenner, Carter, M. Cohen, S. Cohen, Coulter, Danskin, Grob, Hayden, Kenney, Kvaraceus, Nicholson, Nunnemacher, Olson, Reynolds, Rubinstein, Trachtenberg, Van Tassel, Wapner, Warman and Weiner
Credentials	S. Cohen, *chairman;* R. Anderson, Brenner, Danskin, Grob, Hayden, Kvaraceus, Nunnemacher, Van Tassel and Wapner
Academic Council	Campbell, *chairman;* M. Cohen, Cunningham, Davies, McNulty*, Overington*, Reynolds, Shiver and Suh
College Board	Campbell, *chairman;* Barbera, Corcoran, Erickson, Rasmussen, M. Savage, Stevens and Topkin
Admissions	Hayden, *chairman;* K. Anderson, Bowden, Bristol, Curtis, Pierson, Poor, M. Savage, Topkin, and White.
Scholarships	Hayden, *chairman;* Barron, Kidd, Michalopoulos, Pierson, M. Savage, Topkin, and White
Athletics	Stubbe, *chairman;* Granger, Raffman, Rasmussen, David Savage, M. Savage and Topkin
Evening College Board	Dolphin, *chairman;* Blinderman, Edwards, Grob, Kaplan, Markle and Murphey
Library	Cowardin, *chairman;* Curtis and Grob
Research Council	Lee (ex-officio); *chairman;* Beard, Curtis, Erickson, Kates, Nicholson, and Stevens.
Ad Hoc Academic Board	Jackson, *chairman,* Campbell, *secretary,* Barrow, Brenner, M. Cohen, S. Cohen, Kennison, Nunnemacher, Schatzberg, Sultan, Wapner and White

*Students

SCHOLARS AND FELLOWS APPOINTED UNDER CLARK UNIVERSITY FUNDS 1968 - 69

Alumni Association Fellows

John S. Gittens, Psychology, B.A., Trinity College, 1965.

Willem A. Moesen, Economics, License, Catholic University of Louvain, 1968.

Vincent Okwuosa, Government and International Relations, B.A., Haile Selassie University, 1968.

George S. Barton Fellows

Ronald Boucher, Sociology, B.S., Clark University Evening College, 1968.

Elnora W. Curtis Fellow

Felicisima C. Serafica, Psychology, B.A., University of Pennsylvania, 1925; M.S.Ed., *ibid.*, 1953; M.A. Temple University, 1955.

Eliza D. Dodge Fellows

Kenneth J. Moynihan, History, B.A., Holy Cross College, 1966.

John L. Wood, Chemistry, B.Sc., University College, University of London, 1963.

Joseph F. Donnelly Fellows

Christopher Clayton, Geography, B.A., Jesus College, 1966; M.A., University of Cincinnati, 1968.

Martin S. Goldman, History, B.A., Temple University, 1962; M.A. *ibid.*, 1965.

Arthur J. Krim, Geography, B.A., Clark University, 1965; M.A., University of Chicago, 1967.

Richard G. Montgomery, Mathematics, B.A., San Francisco State College, 1960; M.A.T., Brown University 1965.

Thomas J. Whall, Chemistry, A.B., St. Anselms College, 1964.

John White Field Scholar

David M. Close, Physics, A.B., Franklin & Marshall, 1964; M.S., West Virginia University, 1968.

Austin S. Garver Scholars

John B. Chester, Physics, B.S.E.E., New Haven College, 1967.

Thomas J. Nestor, Economics, B.A., Canisius College, 1968.

Mrs. Pearl G. Waterhouse, Education, B.S.Ed., Salem State College, 1942; M.A. in Ed., Clark University, 1967.

David P. Wilson, Chemistry, B.S., Providence College, 1968.

Graduate School Scholars and Fellows

Robert R. Demers, Economics, B.S., Worcester Polytechnic Institute, 1967.

Nripinder Singh, English, B.A., Mahendra College, 1964; M.A. Punjabi University, 1966.

Jay R. Stein, Sociology, B.A., Hofstra University, 1968.

George Frisbie Hoar Scholars

Roger A. Hart, Geography, B.A., University of Hull, 1968.

Leo P. Mahoney, Economics, B.S., Crark Evening College, 1968.

Stuart Shuman, Education, B.A., Clark University, 1966.

Charles H. Thurber Scholars and Fellows

Terrence E. Coyne, History, B.B.A., University of Massachusetts, 1962; M.A. in Ed., North Adams State College, 1968.

Jonathan L. Faulkner, History, B.A., High Point College, 1968.

AWARDS FROM OTHER FUNDS, 1968 - 69

Danforth Foundation Fellowship

Roberta Thomas, Biology, B.A., University of Hawaii, 1967.

Experienced Teacher Fellowships

Brendon J. Bailey, Geography, B.S., Fitchburg State College, 1960; M.A., Worcester State College, 1965.

Charles Brown, Geography, B.S., University of Vermont, 1967.

Laramee Buckley, Geography, B.S., Willimantic State College, 1962.

George M. Coon, History, B.S., Central Connecticut State College, 1958.

Michael D'Arcangelo, Geography, B.A., St. Michael's College, 1958; M.S., Hofstra University, 1966.

Gary D. Eagles, Geography, B.S., Manchester College, 1964.

Donald J. Fancy, Geography, B.S. Ed., Worcester State College, 1957; M.Ed., *ibid.*, 1962.

Robert J. French, Geography, A.B., Dartmouth College, 1957; M.Ed., Northeastern University, 1966.

Joseph T. Friend, History, B.A., American International College, 1957; M.A., Westfield State College, 1961.

Claude O. Gladu, History, B.S., Rhode Island College, 1962; M.A., *ibid.*, 1967.

Charles Herman, History, B.S., Cornell University, 1950; M.E., Hillyer College, 1956.

Sister Helen Higgins, History, A.B., Regis College, 1942.

Jonathan Hutchinson History, B.S., University of Connecticut, 1943; M.E., University of Hartford, 1964.

Walter Juszynski, History, B.A., Fitchburg State College, 1962; M.Ed., Worcester State College, 1966.

Gregory Konstantakos, Geography, B.S., Bridgewater State College, 1957; M.A., *ibid.*, 1960.

Clyde LaVine, Geography, B.S., Keene State College, 1959; M.A., Boston University, 1964.

Alfred W. Maccarone, History, A.B., Providence College, 1963.

Herbert B. Montebello, History, B.A., American International College, 1962.

Robert Morrill, Geography, A.B., Assumption College, 1963; M.A., *ibid.*, 1964.

Edmund W. Poor, History, B.S., Keene State College, 1959.

Eugene P. Shapiro, History, B.S., City College of New York, 1950; M.A., *ibid.*, 1951.

Geoffrey B. Stearns, History, B.A., Colgate University, 1963; M.A.T., Harvard University, 1965.

Robert Stebbins, History, B.A., Tufts University, 1960; M.A., Worcester State College, 1966.

Mrs. Karen E. Thompson, Geography, B.A., University of North Carolina at Greensboro, 1962.

Ernest A. Wight, Geography, B.S., Boston University, 1956.

Higher Education Act 1965 Title V-C Fellows

William Z. Clark, Jr., Geography, B.A., Concord College, 1967.

Robert P. Donnell, Geography, B.A., Boston University, 1967.

Joan A. Dowd, Geography, B.A., Wilson College, 1968.

Sally Jane LeMaire, Geography, A.B., Mount Holyoke College, 1968.

James Sanders, Jr., Geography, B.A., North Carolina College, 1968.

Sue C. Simonds, Geography, B.S.Ed., Fitchburg State College, 1968.

Marilyn J. Soergel, Geography, B.A., University of Cincinnati, 1968.

Margaret A. Tindal, Geography, B.S., Coppin State College, 1967.

National Aeronautics and Space Administration Trainees

James A. Albright, Chemistry, B.S., State University of New York, 1966.

Gayle P. Orczyk, Biology, B.A., Keuka College, 1966; M.A., Clark University, 1968.

Douglas Lee Schmucker, Biology, B.S., Kenyon College, 1965; M.A., Clark University, 1968.

Joseph A. Tanne, Mathematics, B.S., Providence College, 1967.

John H. Young, Physics, B.A., Gettysburg College, 1962; M.Sc., University of New Hampshire, 1964.

National Defense Education Act Title IV Fellows

Michael C. Acree, Psychology, B.A., Oberlin College, 1968.

Stanley P. Baniukiewicz, Chemistry, B.S., University of Massachusetts, 1965.

William T. Emerson, Geography, B.A., Antioch College, 1966; M.A. cand., University of Minnesota, 1968.

Darrell R. Ferguson, Geography, B.S.Ed., University of Idaho, 1960; M.A., *ibid.*, 1968.

Gerard W. Gawalt, History, B.A., Northeastern University, 1965; M.A., Clark University, 1968.

David M. Goodman, History, B.A., Long Island University, 1967.

Wilma K. Gottlieb, Psychology, B.A., Cedar Crest College, 1967.

James P. Hanlan, History, A.B., Holy Cross College, 1967.

John B. Hench, History, B.A., Lafayette College, 1965; M.A., Clark University, 1968.

Gordon A. Hinzmann, Jr., Geography, B.A., Wayne State University 1966.

Harel C. Lacey, Chemistry, B.Sc., Pembroke College, 1967.

John R. Lau, Psychology, B.A., St. Joseph's College, 1963.

Elias Meymaris, Chemistry, B.S., Tufts University, 1959.

Nathaniel G. Mullener, Psychology, A.B., George Washington University, 1965.

Robert C. Nickolson, Chemistry, B.S., University of Massachusetts, 1968.

James L. Pavitt, History, B.A., University of Missouri, 1968.

Mrs. Virginia L. Riorden, Sem. II, History, A.B., University of Alabama, 1946.

Lewis D. Rosenthal, Geography, B.B.A., City College of New York, 1943; M.A., New School for Social Research, 1964.

Mrs. Ruth C. Samson, Psychology, B.A., University of Nebraska, 1967.

Michael F. Watson, Sem. I, History, B.A., Florida Presbyterian College, 1968.

Denis Wood, Geography, B.A., Western Reserve University, 1967.

National Institute of Mental Health Predoctoral Fellows

Mrs. Anna-Lisa Barofsky, Biology, B.A., Drew University, 1962.

Andrew R. Goldman, Psychology, B.A., Harvard College, 1963.

Bert Meltzer, Psychology, B.S., Tufts University, 1963; M.A., Clark University, 1966.

National Science Foundation

Norman D. Blumberg, Mathematics (Graduate Trainee) , B.A., Colby College, 1968.

R. Bruce Cassel, Chemistry (Graduate Trainee) B.S., Dartmouth College, 1965.

John B. Chester, Physics (Graduate Trainee) , B.S.E.E., New Haven College, 1967.

Elizabeth E. Clark, Mathematics (Graduate Trainee) , B.A., Bennington College, 1967.

James B. Crawford, Psychology (Graduate Trainee), B.S., George Institute of Technology, 1967.

Robert K. Jordan, Jr., Economics (Summer Fellow) , B.A., University of Maine, 1964; M.A., Clark University, 1968.

Phillip M. Kleespies, Psychology (Graduate Trainee Sem. II) , B.A., Xavier University, 1964; M.A., Clark University, 1967.

Gerard W. LaRusso, Biology (Summer Fellow), A.B., Holy Cross College, 1966.

Richard Melito, Psychology (Graduate Trainee) , B.E., City College of New York, 1964.

Thomas E. Mitchell, Psychology (Graduate Fellow) , A.B., Holy Cross College, 1966.

Richard G. Montgomery, Mathematics (Graduate Trainee Sem. I), B.A., San Francisco State College 1960; M.A.T., Brown University, 1965; M.A., Clark University, 1968; Ph.D., *ibid.*, January 1969.

Caroline A. Murphy, Economics (Graduate Trainee Sem. II A.B., Regis College, 1960; M.A., Clark University, 1963.

Howard G. Sachs, Biology (Graduate Trainee) , B.S., Worcester Polytechnic Institute, 1965.

Judith E. Waggoner, Psychology (Graduate Trainee Sem. I) , A.B., University of Ohio, 1968.

Benjamin G. Wisner, Jr., Geography (Graduate Trainee), A.B., University of California, 1965; M.A., University of Chicago, 1966.

Mrs. Ingrid Hansen Wood, Geography (Graduate Trainee), B.A., Wellesley College, 1962.

Warren B. Zepp, Jr., Biology (Graduate Trainee), B.Sc., Worcester Polytechnic Institute, 1967.

Radcliffe Fellowships

Hariette L. Chandler, Government and International Relations, B.A., Wellesley College, 1959; M.A., Clark University, 1963.

Barbara G. Rosenkrantz, History, B.A., Radcliffe College, 1944.

Woodrow Wilson Fellow

Gary T. Moore, Psychology, B.A., University of California at Berkeley, 1967.

TEACHING ASSISTANTS, TEACHING ASSISTANT SCHOLARS AND FELLOWS, 1968 - 69

Maria Alvarez, Sociology, B.A., University of the Philippines, 1956.

Celia M. Baron, Mathematics, B.Sc., University of Manitoba, 1967, M.Sc., *ibid.*, 1968.

Robins W. Best, English, B.A., University of Vermont, 1959.

Robert E. Black, Geography, B.S. Ed., Boston College, 1958; M.A., Clark University, 1967.

Francois Blanty, History, C.E.L.G., Faculte de Paris-Nanterre, 1966; C.E.S., *ibid.*, 1967.

Norman D. Blumberg, Mathematics, B.A., Colby College, 1968.

Frederick Borger, English, B.A., Wesleyan University, 1965.

Anita Briggs, Romance Languages, B.A., Florida Presbyterian College, 1968.

Maria L. V. Bulaong, Psychology, A.B., Assumption Convent (Philippines), 1964.

Russell B. Capelle, Jr., Geography, B.A., Dartmouth College, 1965.

German P. Carrazano, Physics, B.S., California State Polytechnic College, 1967.

Kang-Tsung Chang, Geography, B.S., National Taiwan University, 1965.

Ronald Charette, Romance Languages, B.A., Rhode Island College, 1968.

Fu-tuan Chen, Physics, B.S., National Taiwan Normal University, 1968.

Bin Kang Cheng, Chemistry, B.S., Taiwan Normal University, 1964; M.S., National Central University, 1968.

Elizabeth R. Clark, Mathematics, B.A., Bennington College, 1967.

William Z. Clark, Jr., Geography, B.A., Concord College, 1967.

David M. Close, Physics, A.B., Franklin & Marshall College, 1964; M.S., West Virginia University, 1968.

Robert Courchesne, Education, B.A., St. Mary's College, 1967.

James L. Crowell, Biology, B.A., Humboldt State College, 1968.

Bordon D. Dent, Geography, B.S., Towson State College, 1963; M.A., University of California at Berkeley, 1967.

Richenda M. Eberling, Romance Languages, B.A., Notre Dame of Maryland, 1967.

Irene Fournier, Biology, A.B., Boston University, 1966.

Kenneth Gillman, Geography, B.A., Brooklyn College, 1965.

Mrs. Sandra F. Gerber, Biology, B.S., University of Missouri, 1959.

John S. Gittins, Psychology, B.A., Trinity College, 1965.

Martin S. Goldman, History, B.A., Temple University, 1962; M.A., *ibid.*, 1965.

Jong-U Han, Physics, B.S., Seoul National University, 1961; M.S., *ibid.*, 1966.

Richard H. Jackson, Geography, B.S., Brigham Young University, 1965; M.S., *ibid.*, 1966.

Samuel Kaplan, Chemistry, B.A., Clark University, 1969.

Joseph A. Keenan, Chemistry, B.S., Spring Hill College, 1964.

Kyongtae Kim, Chemistry, B.S., Seoul National University, 1966; M.S., *ibid.*, 1968.

Suzy Park Kim, Biology, B.S., Seoul National University, 1964; M.S., *ibid.*, 1967.

Sheldon M. Ksionzky, B.A., University of California at Los Angeles, 1968.

Paul W. Kwan, Biology, B.S., University of Maryland, 1966.

Mrs. Sandra S. Landau, Sociology, A.B., Radcliffe College, 1956.

Mrs. Patricia M. Landurand, Sociology, B.S., Bridgewater State College, 1966.

Gerard W. LaRusso, Biology, A.B., Holy Cross College, 1966.

J. Alan Leach, Geography, B.A., Dartmouth College, 1966.

Shirley S. Lin, Physics, B.A., National Taiwan Normal University, 1964; M.S., Mississippi State University, 1968.

John H. Long, History, A.B., Northeastern University, 1966.

Leo A. Lortie, Sociology, B.A., Clark University, 1967.

Paul J. Mahon, A.A., Biology, B.A., Assumption College, 1966.

Mrs. Carol Loughlin Mainville, Physics, B.S., Merrimack College, 1965; M.A., Clark University, 1968.

Mina Makooi, Biology, B.S., Tehran University, 1962; M.A., Boston University, 1967.

Mrs. Marshall S. Markle, Romance Languages, A.B., Hood College, 1965.

Gordon M. Marshall, History, B.A., Whittier College, 1964; M.A., Clark University, 1968.

David C. McCauley, Geography, B.S., Salem State College, 1965; M.A., Eastern Michigan University, 1968.

Donald D. Miller, Geography, B.A., Durham University, 1966.

Jean W. Missud, III, History, B.A., Brown University, 1962.

Kenneth J. Moynihan, History, B.A., Holy Cross College, 1966.

Russell W. Muncaster, Geography, B.A., Waterloo University College, 1966; M.A., Clark University, 1968.

Caroline A. Murphy, Economics, A.B., Regis College, 1960; M.A., Clark University, 1963.

Ebenezer Negron-Vazquez, Geography, B.A., University of Puerto Rico, 1966; M.A., *ibid.*, 1967.

Gale H. Nigrosh, Romance Languages, B.A., Barnard College, 1968.

Donald E. O'Connor, Government and International Relations, B.S., Buffalo State College, 1964; M.A., Lehigh University, 1965.

Thomas O'Hara, Economics, B.S., St. Lawrence University, 1955; M.B.A., Clark Evening College, 1968.

Eileen M. O'Shea, Biology, B.A., Anna Maria College, 1967.

Mrs. Helene Z. Ostrow, Sociology, B.A., Hunter College, 1940.

Clifford L. Pelletier, Mathematics, A.B., Providence College, 1968.

John P. Radford, Geography, B.A., Sheffield University, 1965; M.A., University of Maryland, 1967.

Mrs. Edith Rosenthal, Sociology, A.B., Barnard College, 1945.

Barry N. Rosloff, Biology, A.B., Clark University, 1966.

Neil D. Schor, Romance Languages, B.A., Pennsylvania Military College, 1968.

Geoffrey B. Sewall, English, B.A., University of the South, 1961.

Thomas J. Shea, Economics, B.A., Boston College 1963; M.A., Northeastern University, 1968.

Nripinder Singh, English, B.A., Mahendra College, 1964; M.A., Punjabi University, 1966.

Stephen W. Slocomb, History, B.A., Northeastern University, 1966.

Robert J. Smith, Government & International Relations, B.A., Southern Connecticut State College, 1966; M.A., Clark University, 1967.

David J. Solonche, Biology, A.B., Yeshiva College, 1966.

Edward J. Stefanini, Mathematics, B.S., Worcester Polytechnic Institute, 1960; M.A., Clark University, 1968.

Joseph A. Tanne, Mathematics, B.S., Providence College, 1967.

Rene P. Tasse, Biology, A.B., Assumption College, 1956; M.A., Clark University, 1963.

Dennis L. Taylor, Psychology, B.A., Carleton University, 1967.

James A. Urisko, Economics, B.A., Wilkes College, 1967.

Ann L. Vollmer, Geography, B.A., University of California at Santa Barbara, 1968.

Jeanne Wacht, Romance Languages, B.A., Keuka College, 1968.

Richard S. Walker, English, B.A., American University, 1967.

Thomas J. Whall, Chemistry, A.B., St. Anselm's College, 1964.

David P. Wilson, Chemistry, B.S., Providence College, 1968.

John C. Wirkkala, History, B.A., University of New Hampshire, 1964; M.A., Clark University, 1966.

Der-horng Yean, Chemistry, B.S., Chung Yuan Christian College, 1964.

John H. Young, Physics, B.A., Gettysburg College, 1962; M.Sc., University of New Hampshire, 1964.

THE CORPORATION

Officers

Alice C. Higgins, Chairman	Worcester, Mass.
Fairman C. Cowan, LL.B., Vice Chairman	Worcester, Mass.
Richard W. Mirick, LL.B., Secretary	Princeton, Mass.
Shane E. Riorden, LL.B., Treasurer	Barre, Mass.
Robert M. Hyde, A.M., Assistant Secretary	West Boylston, Mass.

Life Members

Roland A. Erickson, A.M. (1951-)	Greenwich, Conn.
A. D. Ross Fraser, A.B., L.H.D. (1960-)	Rome, New York
Jacob Hiatt, A.M. (1955-)	Worcester, Mass.
Alice C. Higgins (1962-)	Worcester, Mass.
John Jeppson, M.B.A., Sc. D. (1948-)	Worcester, Mass.
Richard W. Mirick, LL.B. (1957-)	Princeton, Mass.
Joseph C. Molder, M.B.A. (1954-	Worcester, Mass.

Term Members

Frederic W. Howe, Jr., A.B. (1962-)	New Braintree, Mass.
Alden P. Johnson, A.B. (1962-)	Worcester, Mass.
Stephen T. Riley, Ph.D. (1963-)	Weston, Mass.
Constance E. Smith, Ph.D. (1963-)	Cambridge, Mass.
Elwyn C. Hale (1963-)	Piedmont, Calif.
Ben H. Bagdikian, A.B., L.H.D., Litt. D. (1964-)	Washington, D.C.
Fairman C. Cowan, LL.B. (1964-)	Worcester, Mass.
Esther C. Goddard, A.M., Sc.D. (1964-)	Worcester, Mass.
Archie Greenberg, A.M. (1965-)	Miami Beach, Fla.
C. Waller Barrett, Litt.D., L.H.D. (1966-)	Charlottesville, Va.
Francis A. Harrington, A.B. (1966-)	Worcester, Mass.
David R. Porter, A.B. (1966-)	Wellesley, Mass.
Robert K. Massey, A.B. (1968-)	Holden, Mass.
Chester Bland, A.M. (1969-)	West Hartford, Conn.

Members Elected by the Alumni

John J. Singer, Jr., Ph.D. (1964-)	Hollis, N.H.
Shannon B. McCune, Ph.D., LL.D. (1965-)	Riverdale, N.Y.
Gustaf Coontz, A.B. (1966-)	Worcester, Mass.
Robert A. Nelson, Ph.D., Sc.D. (1967-)	McLean, Va.
John W. Kneller, Ph.D. (1968-)	Oberlin, Ohio
Robert E. Dik, A.B. (1969-)	Worcester, Mass.

Emeriti

Howard M. Booth (1939-1965)	Worcester, Mass.
Francis H. Dewey, Jr., LL.B. (1934-1962)	Worcester, Mass.
Samuel H. Dolbear (1940-1961)	Tuscon, Arizona

Committees of the Board of Trustees (1968-69)

President Frederick H. Jackson is an *ex officio* member of all trustee committees.

Higgins, *Chairman;* Coontz, Cowan, Hiatt, Howe, Jeppson, Miller, and Mirick. (Staff: Mr. Hyde)	*Executive*
Hiatt, Massey, Miller, Mirick, Molder, and Porter. (Staff: Mr. Riorden)	*Budget and Finance*
Smith, *Chairman;* Bagdikian, Barrett, Goddard, Greenberg, Kneller, McCune, Nelson, Singer, *Campbell, and *Cohen.	*Academic Affairs*
Fraser, *Chairman;* Bagdikian, Cowan, Erickson, Higgins, and Jeppson. (Staff: Mr. Hyde)	*Nominating*
Hiatt, *Chairman;* Bland, Goddard, Hale, Harrington, Johnson, Nelson, Riley, Singer, *Anderson, *Coulter, *Stein, *Riorden, *Abrahms, *Margulies, *Savitsky, and *Schrager. (Staff: Mr. Goodney)	*Physical Plant*
Porter, *Chairman;* Coontz, Fraser, Jeppson, Hale, Harrington, Hiatt, Howe, Massey, *Bailey, and *Hyde. (Staff: Mr. Gleason)	*Planning and Development*
Bagdikian, *Chairman;* Greenberg, Hale, Johnson, Kneller, McCune, Riley, Smith, *Beard, *Campbell, *Grob, and *White. (Staff: Mr. Plaisted)	*Honorary Degrees*
Singer, *Chairman;* Bland, and Howe. (Staff: Mr. Haas)	*Auditing*
Higgins, *Chairman;* Barrett, Goddard, Howe, Johnson, Nelson, Riley, *Barron, *Billias, *Cowardin, *Grob, *Raffman, and *Riorden. (Staff: Mr. Goodney)	*Library Planning Subcommittee*
Cowan, *Chairman;* Hiatt, Mirick, and *Hyde. (Staff: Mr. Riorden)	*Hadwen Arboretum*
Coontz, *Chairman;* Harrington, *Goodney, *Murphey, *Savage, *Topkin, *Virostek, *Hanson, *Holmgren, *O'Hagan, and Saggerson. (Staff: Mr. Riorden)	*Dormitory Planning*

*See page 218.

Responsibilities and Function of the Trustees

Barrett, *Chairman;* Bland, Cowan, Fraser, Mirick, Smith, and Higgins. (Staff: Mr. Hyde)

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Patricia B. Abbott, A.A., *Administrative Assistant in Development*
Vernon T. Ahmadjian, Ph.D., *Associate Dean of The Graduate School*
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Gertrude Bitter, *Purchasing Assistant*
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Robert F. Campbell, Ph.D., *Assistant to the President*
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Theresa M. Catrambone, *Assistant to the Director, The Evening College*
Kathleen A. Convery, *Assistant to the Vice President for Business and Finance*
Gerard T. Cororan, M.A., *Registrar*
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Charles K. Gleason, Ed.M., *Director of Development*
Robert E. Goodney, *Director of Physical Plant*
George M. Joseph, M.D., *Medical Director*
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Mary A. O'Malley, *Secretary, The Graduate School*
Clark A. Perry, *Supervisor of Data Processing*

Richard W. Pierson, A.M., *Director of Admissions*
Julian A. Plaisted, A.B., *Director of Public Relations*
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Spencer R. Potter, Ed.D., *Director of Career Planning and Placement*
Marcia A. Savage, Ed.D., *Associate Dean of Students*
Marjorie K. Swindell, *Manager, Central Services*
William E. Topkin, Ed.D., *Associate Dean of Students*
James D. Van Houten, A.B., *Director of Alumni Affairs*

ACADEMIC CALENDAR FOR 1969-70

1969

Friday, September 5	Freshman orientation begins.
Monday, September 8	First semester registration.
Tuesday, September 9	Classes begin.
Monday, October 27	Last day for receiving applications for admission to candidacy for the degree of Doctor of Philosophy in June, 1970. Mid-semester reports due at Registrar's Office at 9 a.m.
Wednesday, November 26	Beginning of Thanksgiving recess at close of classes.
Monday, December 1	Thanksgiving recess ends at 8:30 a.m.
Wednesday, December 17	Beginning of Christmas recess at close of classes.

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Friday, January 2	End of Christmas recess at 8:30 a.m.
Friday, January 2	No classes.
Saturday, January 3	Semester examinations begin.
Saturday, January 10	Last day of examinations. Mid-year recess begins at 5 p.m.
Monday, January 19	January Study Period begins.
Monday, February 9	Second semester registration.
Tuesday, February 10	Classes begin.
Friday, February 13	Last day for receiving applications for admission to candidacy for the degree of Master of Arts and Master of Arts in Education.
Friday, March 27	Mid-semester reports due at Registrar's Office at 9 a.m.
Saturday, March 28	Beginning of spring recess at close of classes.
Monday, April 6	End of spring recess at 8:30 a.m.
Monday, May 11	Dissertations for the degrees of Doctor of Philosophy and Doctor of Education due at Registrar's Office at 9 a.m.
Monday, May 18	Theses for degrees of Master of Arts and Master of Arts in Education due at Registrar's Office at 9 a.m.
Thursday, May 21	No classes.
Friday, May 22	No classes.
Saturday, May 23	Semester Examinations begin.
Sunday, June 7	Commencement Day.

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969-1970

MASTER OF BUSINESS ADMINISTRATION

CLARK UNIVERSITY

VISION OF BUSINESS ADMINISTRATION/WORCESTER, MASSACHUSETTS

MDCCCLXXXVII

ABOUT CLARK UNIVERSITY . . .

Clark University is an urban, independent university of liberal arts and business administration, founded in 1887 as a graduate institution. By design, the University has remained small to offer its students the rare educational experience of close personal relationships between and among the faculty and students. The thirty-five-acre campus' twenty-five major buildings are located two miles from Worcester's business center. The city is distinguished as an educational center. Ten schools of higher learning with more than 10,000 students enrolled are located nearby. The splendid 270,000-volume Robert Hutchings Goddard Library, an international tribute to the late rocket pioneer who studied and taught at Clark, is located on the Clark campus. Additional research facilities include the Clark University Computation Center, which houses an IBM 1620, and the Worcester Area College Computation Center's RCA Spectra 70/46. Of course, extensive facilities are available throughout eastern Massachusetts.

. . . AND WORCESTER

Worcester is a metropolitan area of over a quarter million people located among the rolling hills of central Massachusetts. It has diversified industry and is the world and national headquarters of a number of firms. It is within easy driving distance of the region's other major cities and New England's resources of recreational, cultural and historical places of interest. Individually and cooperatively Worcester's colleges annually sponsor broad programs of cultural activities. Among other major cultural attractions in Worcester are the world-renowed Worcester Art Museum, the Higgins Armory Museum, Worcester Historical Society and the Worcester Public Library. Also, the Worcester Music Festival presents, as it has for more than a century, an annual series of concerts by the world's great performers. Some of the other outstanding events held throughout the year include theatrical productions, symphonic concerts, light operas, folk festivals and lecture series.

THE M.B.A. PROGRAM

The Master of Business Administration program, now administered by the Division of Business Administration, was inaugurated in 1962 as an offering of the Clark Evening College. The program's aim continues to be the furthering of formal education for business for young executives who study while remaining active in their careers. All courses are scheduled in the late afternoon and evening, thus serving the needs of part-time as well as full-time students. This arrangement provides an excellent opportunity for students without experience to develop close associations with practicing business executives.

A total of 49 semester hours is included in the program which consists of two parts: the core curriculum and the graduate curriculum.

A student who has finished the core requirement can complete the program in one academic year in residence, or in two years and two summers on a part-time basis.

Since its inception, the program has grown in enrollment by more than 25 per cent each year. Presently about two hundred and forty men and women are enrolled and 33 have completed the program.

THE THEORY OF THE PROGRAM

Because of the wide variety of disciplines and techniques that business draws upon and the dynamic changes that are taking place in business practices, no attempt is made to present subjects as closed bodies of knowledge or to prepare men for initial or current career positions. The academic objective of the M.B.A. program is to assist the student in developing his abilities to educate himself, so that his intellectual growth does not terminate with the receipt of the degree.

> *What one knows is, in youth, of little moment; they know enough who know how to learn.*
>
> Henry Adams, *The Education of Henry Adams*

The criteria for inclusion of subject matter in courses and the intensity of inquiry are resolved in the following manner: where knowledge and skills are readily acquired on the job or by independent study and practice, minimal attention is given; where skilled specialists are readily available, the subject matter is developed to the extent that communication with the specialist is effective; where some subject matter is of interest to some aspect of business, but not to the central theme, passing mention is made; in developing areas where the supply of specialists is scarce, the educational effort is directed to laying the basis for the future development of an expertise; most intense and rigorous thought is devoted to building the self-reliance of the executive in situations where he must solve the problems for himself, without the advice of a staff of experts.

Independent research and reporting is encouraged. Evaluation of these reports takes note of the ingenuity, consistency and orderliness of thought and clarity of presentation.

THE CORE CURRICULUM

The core is prerequisite to the graduate courses. To make student-faculty contacts most significant, the burden of acquiring the necessary descriptive knowledge is placed upon the student. To eliminate all possible repetition, courses are combined according to common purpose, topic, or technique. In this way the core course load is reduced from the traditional 30 semester hours to 19.

The core is designed to acquaint the students with the internal and environmental institutions of business, (SURVEY), the abstract notions of the production and distribution of valuable goods, (THEORY OF THE FIRM and MACROECONOMICS), the analytical tools available, (PROBABILITY AND STATISTICS, STATISTICAL ANALYSIS OF RELATED DATA and ACCOUNTS AND FINANCE), and the functional fields of business, (PRODUCTION AND MARKETING MANAGEMENT).

All or part of the core may be waived if the student's prior education includes courses according to the following schedule:

291. SURVEY (Separate parts are waivable.)	All fundamental business and related courses.
293. THEORY OF THE FIRM and MACROECONOMICS	Six semester hours of principles of economics plus college mathematics.
295. PROBABILITY AND STATISTICS 296. and STATISTICAL ANALYSIS OF RELATED DATA	Six semester hours of probability and statistics including correlation analysis.
297. BUSINESS ACCOUNTS AND FINANCE	Six semester hours of accounting and three semester hours of business or corporation finance.
299. PRODUCTION AND MARKETING MANAGEMENT	Three semester hours of marketing plus three semester hours of business, industrial or production management.

Mathematics is not listed as a core course nor is a high degree of mathematical sophistication demanded in the M.B.A. program. However, mathematical techniques are used wherever they prove most viable for logic or analysis. Students who feel they lack any proficiency in mathematics would be well advised to take a course in college mathematics or THEORY OF THE FIRM even if they have met the economics requirement. Auto instruction manuals are available for students who merely feel out of practice and wish to review.

> *Philosophy is written in this grand book—I mean the universe—which stands continually open to our gaze, but it cannot be understood unless one first learns to comprehend the language and interpret the characters in which it is written. It is written in the language of mathematics, and its characters are figures, without which it is humanly impossible to understand a single word of it; without these, one is wandering about in a dark labyrinth.*
>
> Galileo, *Il Saggiatore (1623)*

THE GRADUATE CURRICULUM

One academic year of 30 hours of graduate courses is required for the M.B.A. degree.

So that course interrelationships will be most meaningful, this curriculum is oriented to the central theme of all purposive activity, namely the decision-making process. In this respect, the discourse is germane not only to business, but to a variety of non-profit organizations as well.

> *That queer sense of relief and shame which comes to those who make sensible decisions.*
>
> Stephen V. Benet, *Western Star*

Here the decision-making process and course relevance is viewed as: determining goals or objectives, (FOUNDATIONS OF BUSINESS), searching for and evaluating alternative solutions to the problems of achieving these goals by analysis of internal information, (ACCOUNTING FOR MANAGERIAL DECISIONS), external information, (MANAGERIAL ECONOMICS or ECONOMETRICS), selecting the best alternatives, i.e., making the decisions, (STATISTICAL DECISION THEORY AND MATHEMATICAL PROGRAMMING), coordinating all decisions so that the firm behaves as an integrated unit, (SYSTEMS ANALYSIS), and articulating the decisions as rules or as policies and delegating the responsibility for their execution, (POLICY FORMULATION AND ADMINISTRATION).

Completion of the above courses empowers the student to examine the functional field of interest to himself regarding the latest developments (FINANCIAL POLICIES, PLANNING AND CONTROL or MARKETING THEORY or BUSINESS AND GOVERNMENT RELATIONSHIPS or READINGS AND TUTORIAL).

It is expected that during this program the student will envision an opportunity to apply some of the ideas he has acquired to an aspect of his own business experience in an original manner or to extend the boundary of theory (SEMINAR).

> *Wisdom is the principal thing; therefore get wisdom; and with all thy getting get understanding.*
>
> *Proverb IV*, 7

For students whose legitimate personal educational goals vary from this theme, options are available. Other courses offered by Clark University may be substituted with the approval of an advisor.

ADMISSION

ELIGIBILITY FOR MATRICULATION

Admission is open to qualified graduates of accredited undergraduate colleges or the equivalent who show high promise of success in their graduate study. Criteria normally used in evaluating an applicant's potential include his achievement as an undergraduate, performance on the Admission Test for Graduate Study in Business, and his personal growth and development in his career.

ELIGIBILITY TO TAKE CORE COURSES

The core program is open to third- and fourth-year undergraduates who can complete this requirement before receiving the baccalaureate, and so reduce the master's requirement to 30 semester hours of graduate study. Undergraduates should consult an advisor before electing these courses.

Core courses are also open to certain graduate students who do not meet the standards for matriculation, and who wish to demonstrate their ability to do graduate work successfully. Such students are classified as special students. Completion of the core requirement does not imply acceptance into the graduate program, but performance in class will be offered as evidence in making a recommendation to the Admissions Committee.

AUDITORS

Business practitioners who feel that their education is dated may audit core or graduate courses to acquaint themselves with the latest management concepts and techniques. These people do not receive grades or credit for these courses.

APPLICATION PROCEDURE

An applicant for matriculation must submit to the Director of the Division of Business Administration the completed application form for admission to the Graduate School. He must request of the registrars of all institutions of higher education previously attended the official transcripts of his academic record be sent to the Director. He should request three persons who have had a chance to observe his career performance or who know his academic qualifications well to write letters of recommendation to the Director. He should arrange to take the Admission Test for Graduate Study in Business and have his scores submitted. Information about this test may be obtained at the Guidance and Placement Office, Room 111, Jonas Clark Hall, or by writing to the Educational Testing Service, Princeton, New Jersey 08540.

An applicant for special status must complete the application form and have official copies of all transcripts sent to the Director.

ADMISSION TO CANDIDACY

Application for admission to candidacy for a master's degree should be filed with the Director of the Division not later than the first week of the last semester which the student expects to spend as a candidate for this degree.

Applications will be considered when the student has completed one semester of full-time graduate work in residence or its equivalent at the University, obtained the written endorsement of his major department and paid the diploma fee and publication fee.

TUITION AND OTHER CHARGES

TUITION

For the year 1969–1970 the tuition for the graduate and core courses is $1,100 per semester. Students will be considered full- or part-time, paying a fraction of the University tuition according to the following schedule:

3– 4 semester hours.	One-fifth-time
5– 7 semester hours.	Two-fifths-time
8–10 semester hours.	Three-fifths-time
11–13 semester hours.	Four-fifths-time
14–18 semester hours.	Full-time

OTHER CHARGES

Application	$10.00 non-returnable
Registration	No charge
Late registration	$25.00 after the second week
Diploma–publication	$25.00

INSURANCE

All full-time students must, and part-time students may, take accident and sickness insurance unless they already have an equivalent policy. The insurance form must be completed at each September registration by all students. Students entering in February must also complete this form.

LIBRARY IDENTIFICATION CARD

Each student must have an I.D. Card for library purposes. Photographs will be taken at registration. There will be no charge for this card.

LIVING FACILITIES FOR GRADUATE STUDENTS

Off-campus rooms and apartments are available in the immediate area of the University. For information concerning University accommodations, the office of Buildings and Grounds keeps a bulletin board of available off-campus rooms and apartments. Students should plan to arrive a few days before registration in order to arrange for housing. Graduate students are invited to take their board in the University dining halls.

CORE COURSES

BA 291. SURVEY OF BUSINESS AND ENVIRONMENTAL INSTITUTIONS. Mr. O'Hara

By means of assigned readings students are expected to familiarize themselves with some business terminology and acquaint themselves with the institutions through which business practices are executed and which modify the nature of business enterprise. There are five sections. a) Finance: various long-term and short-term instruments of financing; money and capital markets; organization for the protection of owner's equity. b) Organization: functionalization; staffing; authority, and responsibility; line and staff relationships, centralization and decentralization; measurement of performance and control. c) Marketing: consumers; retailers, merchant and agent wholesalers, producers and channels of distribution; advertising, personal selling and promotion; the marketing mix. d) Labor: the interests and goals of management and of labor; bargaining power and collective bargaining; survival, advantage and security. e) Law: the legal tools for the implementation of economic activity; legal aspects of marketing, financial, personnel and general management. *One semester hour.*

Fall and Spring Semesters Occasional Saturdays at 9:00 a.m.

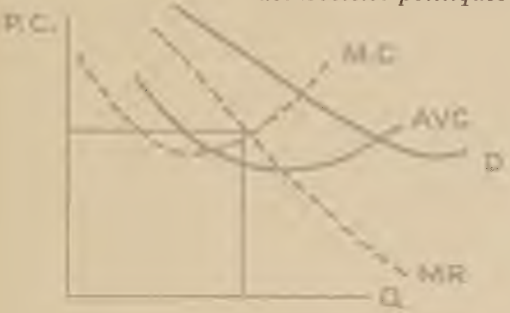
> *The beginning is the most important part of the work.*
> Plato, *The Republic*

BA 293. THEORY OF THE FIRM. Mr. O'Hara

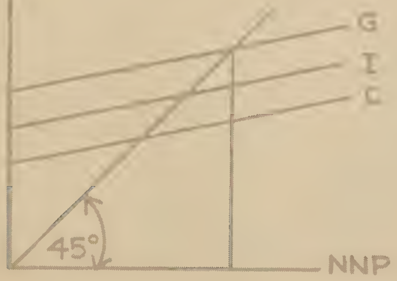
Micro-economic theory with emphasis on various theories of the firm with goals such as profit maximizing, satisficing, sales maximizing, sales maximizing with a profit constraint and cost-plus pricing. Demand determination through the theory of production. The theory of price is studied in perfectly competitive markets, under pure monopoly, under monopolistic competition and in oligopoly markets. Marginal productivity, the distribution of income to the productive factors and employment. General equilibrium and welfare economics. Graphical analysis, analytic geometry and differential calculus are the basic analytical tools. It is assumed that students do not have an adequate mathematical background and sufficient course time is allocated,

and study projects assigned so as to provide students with a working knowledge of the necessary techniques. *Three semester hours.*
Fall Semester Tuesdays at 7:00 p.m.

> *Every commercial nation flatters itself upon its growing wealth as the outcome of foreign trade. This is a truly astonishing phenomenon, for they all believe that they are growing rich and gaining from one another. It must be admitted that this gain, as they call it, is a most remarkable thing, for they all gain and none loses.*
>
> Mercier de la Riviere, *L'Ordre naturel et essentiel des Societes politiques (1767)*



BA 294. MACROECONOMICS. Mr. O'Hara
The measurement, analysis and control of aggregate economic activity. Gross national product, input-output analysis and the flow of funds as alternative national income accounting methods. The classical and Keynesian models of the economy developed and contrasted in detail. Various theories of consumption, prices, investment, savings, and interest rate determination. The relative effectiveness of monetary and fiscal policy at various stages of the business cycle. Capital theory, economic growth, inflation and business cycle theories. A workbook of exercises in macroeconomics is used extensively to allow students the opportunity to apply the tools of measurement and analysis that are developed in the course. *Three semester hours.*
Spring Semester Tuesdays at 7:00 p.m.



> *A creative economy is the fuel of magnificence.*
>
> Emerson,
> *English Traits, Aristocracy*

BA 295. PROBABILITY AND STATISTICS.

Mr. Sargent

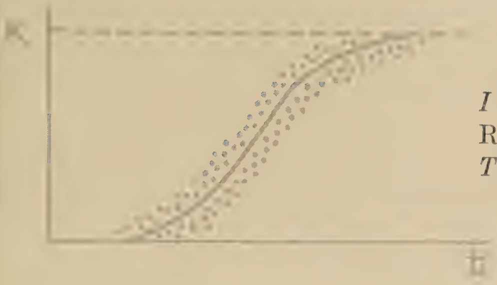
Formerly 295a, Statistical Analysis. Descriptive statistics: theory and application of univariate frequency distribution; measures of the central tendency, dispersion, skewness and kurtosis. Probability theory and theoretical probability density functions. Sampling theory, sampling distributions, confidence interval estimates, tests of statistical significance and hypothesis testing as related to statistical estimation and decision making. Decision rules and their power curves, acceptance sampling and quality control. Analysis of variance with emphasis on statistical decision-making models. Laboratory problems are assigned throughout the semester. A prior knowledge of Fortran IV is desirable, but not essential. Note the mathematics admonition under "Waiver of Core Courses." *Three semester hours.* Mondays at 7:00 p.m.
Fall Semester Wednesdays at 7:00 p.m.

> *But to us, probability is the very guide to life.*
> Bishop Joseph Butler, *The Analogy of Religion*

BA 296. STATISTICAL ANALYSIS OF RELATED DATA.

Mr. Sargent

Formerly 295b, Statistical Analysis. The use of statistics for research with historical data. Economic time series decomposition into mathematical trends: secular, cyclical, seasonal and irregular components. Constant and moving seasonal indexes. Linear and curvilinear bivariate and multivariate regression and correlation analysis; partial correlation analysis; consideration of the stochastic term; examination of the assumptions underlying the least-squares technique; the development of the regression equation. Data on which the operations are performed are collected by the students. BA 295, Probability and Statistics is prerequisite to this course. A prior knowledge of Fortran IV is desirable but not essential. Students who have had a course in statistics elsewhere are advised to consult the instructor. *Three semester hours.*
Spring Semester Wednesdays at 7:00 p.m.



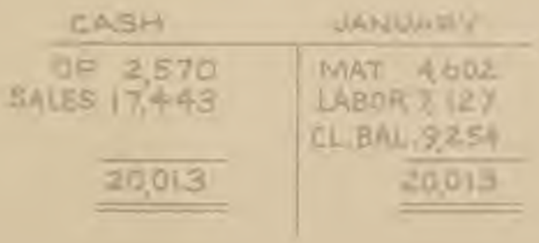
I have ever confined myself to facts.
Rudolf Erich Raspe,
Travels of Baron Munchausen, 1785

BA 297. BUSINESS ACCOUNTS AND FINANCE. Mr. Partridge

From the corporate viewpoint the nature of accounting and generally accepted accounting procedures are examined as a tool for financial reporting. Concepts and instruments of corporation finance are introduced when appropriate. Assets, liabilities, net worth. Accounting procedures; journals and ledgers, debits and credits, posting, the trial balance. Profit and loss: revenue, expense, dividends, and retained earnings, the balance sheet. Transactions, adjustments, amortization, accruals, closing entries, the accounting cycle, cost and revenue matching. Capital stock, reasons for classes of stocks, bonds and mortgages, reasons for different sources of corporate funds; protection of owner's equity. Accounting for and evaluating receivables, inventories and other current assets; fixed assets and current liabilities. Manufacturing costs, unit cost, overhead; historical, standard costs, and variances. Sources and applications of working capital. Ratio analysis of financial data. Consolidated statements. *Three semester hours.*

Spring Semester Mondays at 7:00 p.m.

> *If a man owe a debt, and the storm god inundate his field, . . .*
> *in that year he shall not make any return of grain to the creditor,*
> *he shall alter his contract-tablet and he shall not pay the interest*
> *for that year.*
>
> *Code of Hammurabi, circa 1900 B.C.*



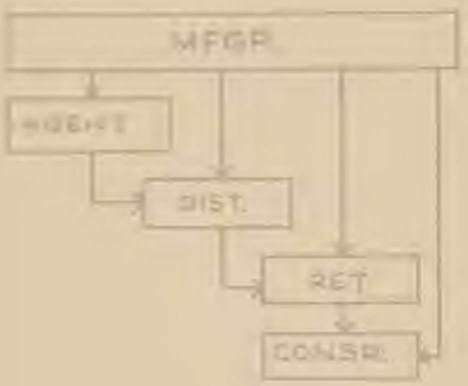
CASH		JANUARY	
OP	2,570	MAT	4,602
SALES	17,443	LABOR	7,127
		CL. BAL.	9,254
	20,013		20,013

BA 299. PRODUCTION AND MARKETING MANAGEMENT.

Mr. Partridge

A unified treatment of the logistical problems of producing and marketing goods. The nature of production, product development. The consumer and consumer behavior, merchant and agent middlemen and their roles, channels of distribution and physical distribution, promotion, pricing, the marketing mix. Plant location, production processes, material handling, production, inventory and quality control. Planning, organizing, staffing, directing and controlling the activities of human beings working for a common purpose.

Fall Semester	Thursdays at 4:00 p.m.
Spring Semester	Thursdays at 7:00 p.m.



No foe dare molest,
where in union are joined
The plow, loom, and chisel,
with commerce combined.

Ode sung in Boston, 1810
. . . quoted in Bartlett's
Familiar Quotations

GRADUATE COURSES

BA 320. FOUNDATIONS OF BUSINESS. Mr. Nath

The purpose of this course is to study business and its relationships to society, to provide an understanding of the evolution of American business and the businessman, the functioning of and rationale for the profit system, and an appreciation of the changing framework of responsibilities facing both the company and its leaders. The course will analyze the differing political, social and economic environments in which the businessman has both adapted to and influenced this environment. Emphasis will be given to the contemporary issues that are requiring today's executives to re-examine their roles and the role of the corporation in community and national life and in multinational operations. In addition to study in contemporary textbooks, students will be required to read in depth in the current journals. In the final analysis, the student should be able to develop a more satisfying personal philosophy. *Three semester hours.*

Fall Semester Tuesdays at 7:00 p.m.
Spring Semester Tuesdays at 4:00 p.m.

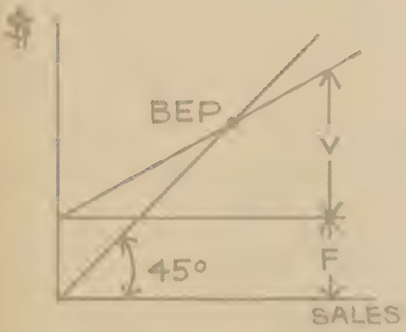
> *Healthy profit, real profit, for a business as for a society as a whole, lies in the fruits of innovation.*
>
> From *The American Challenge* by J.-J. Servan-Schreiber, published by Atheneum, and reprinted by permission of the publishers. Copyright © 1967 by Editions Denoel as *Le Defi Americain.* English translation © 1968 by Atheneum House, Inc.

NATIONAL GOALS
PROFIT MOTIVE
GROWTH
ENTERPRISE
INNOVATION
CONTROL
STABILITY
GENERAL WELFARE
FREEDOM
CONSUMERS INTEREST

BA 330. MANAGERIAL ECONOMICS. Mr. O'Hara

A critical review of the state of economic concepts, measurement, methodology and theory as relevant to business decision making and policy. Topics include market demand; the firm's demand; factors affecting demand; elasticities; and measurement; sales forecasting; cost concepts, matching costs and revenues in the short run; long term costs and productions functions; pricing under various competitive situations, holistic and incremental analysis, pricing objectives and strategy; theoretical distribution of the product and wages. Policy implications of macroeconomic models. Capital budgeting. *Three semester hours.*

Fall Semester Wednesdays at 7:00 p.m.
Spring Semester Wednesdays at 4:00 p.m.



> *In any society . . . the first and overriding social function and responsibility of the enterprise is economic performance.*
>
> Peter F. Drucker,
> *The New Society*, Harper & Row

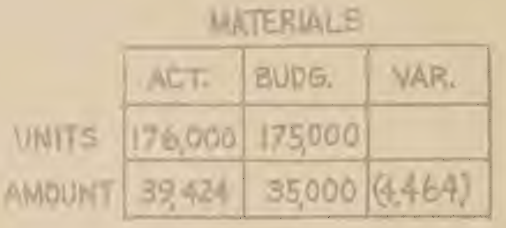
BA 335. ACCOUNTING FOR MANAGERIAL DECISIONS.

Mr. Strobel

The assumptions and procedures of traditional accounting, such as cost control, budgeting, capital budgeting and statement analysis are reviewed as to their originally designed purpose and their applicability for informed decision making. New developments in accounting theory, economics, statistics, electronic data processing, management information systems, and operations research are integrated with traditional accounting techniques to extend the usefulness of internally generated information. *Three semester hours.*

Fall Semester — Wednesdays at 7:00 p.m.

> *Facts are stubborn things.*
>
> Alain Rene LeSage, *Gil Blas 1735*



MATERIALS

	ACT.	BUDG.	VAR.
UNITS	176,000	175,000	
AMOUNT	39,424	35,000	(4,464)

BA 340. MARKETING RESEARCH.

Mr. Wise

Marketing objectives and complex marketing decisions. The risks and consequences of decisions and the role of information. The Bayesian approach to decision theory: subjective or personal probability, conditional values, prior posterior and preposterior analysis; the expected value of information. Traditional sampling of human populations; non-probability samples; random, cluster and stratified samples, their sampling distributions and sampling errors; hypotheses testing, estimation; and risks of wrong decisions. Bayesian sampling techniques: conditional loss functions, conditional expected terminal losses; choosing from among decision rules, sequential sampling. Observational and experimental research designs and their inherent sources of errors; analysis of variance and covariance. Forecasting. *Three semester hours.*

Spring Semester — Tuesdays at 7:00 p.m.

> *Knowledge is of two kinds. We know a subject ourselves or we know where we can find information on it.*
>
> Boswell, *Life of Johnson, April 18, 1775*

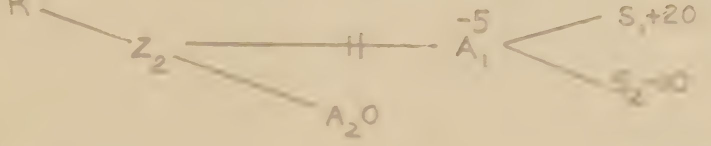
$$P(E_i|I_j) = \frac{P(I_j|E_i)P(E_i)}{\sum P(E_i \cap I_j)}$$

BA 350. STATISTICAL DECISION THEORY. Mr. Sargent

Formerly BA 350a, Operations Research. An introduction to logical analysis of the problem of decisions under uncertainty that arise in the practice of business administration. The course offers an approach to decision-making which asks specific questions about objectives and about controllable and uncontrollable input variables, and seeks to build mathematical models to describe the systems in which these input variables and output objectives interact. Its purpose is to help management make consistent rational decisions. Classical statistical theory is reviewed briefly before Bayesian statistics is introduced so the relationship between the two schools can be clarified. Bayesian analysis then essentially attempts to incorporate all available relevant information into the process of making inferences about an under-ying state of nature, which is to be assessed, and in formulating decisions ased upon these inferences. Further, it explicitly allows for taking account of subjective, or personal, beliefs of the decision maker. In addition to classical and Bayesian statistical theory, the course will introduce the student to selected quantitative techniques for decision-making when the true state of ature is unknown. *Three semester hours.*

Fall Semester — Mondays at 4:00 p.m.
Spring Semester — Mondays at 7:00 p.m.

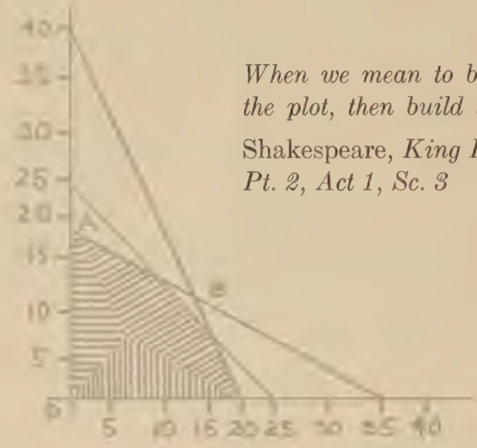
> *Everything is sweetened by risk.*
>
> Alexander Smith, *Dreamthorp 1863*



A 351. MATHEMATICAL PROGRAMMING. Mr. Moody

ormerly BA 350b, Operations Research. Introduction to several mathe-atical models for decision-making. All models deal with maximization or inimization of an objective when there are constraints on available actions. inear programming is treated in depth. Attention is devoted to integer, non-ear, stochastic and dynamic programming. The student must develop an ility to recognize situations in which mathematical programming models are appropriate. He will participate in two studies of actual situations, analyze current practices, measure relevant aspects, set up and solve the model and provide a critique of his studies. *Three semester hours.*

Fall Semester	Mondays at 7:00 p.m.
Spring Semester	Mondays at 4:00 p.m.



> *When we mean to build, we first survey the plot, then build the model.*
>
> Shakespeare, *King Henry IV, Pt. 2, Act 1, Sc. 3*

BA 360. SYSTEMS ANALYSIS. Mr. Moody

This course deals with the creation and uses of computer models to simulate the behavior of firms and industries. Specific subsystems of the firm as well as general models of the firm and industry are studied. Computer simulation is used to facilitate a heuristic approach to solving problems which are too large or too ill-structured to be treated analytically. The use of systems models for experimentation and policy evaluation are stressed. Each student participates in the creation of a systems model, which involves the analysis of current practices, measurement of relevant aspects, construction of the model, and the testing and evaluation of decisions and policies. *Three semester hours.*

Fall Semester	Wednesdays at 4:00 p.m.
Spring Semester	Wednesdays at 7:00 p.m.

> *There are three arts which are concerned with three things: one which uses, another which makes, a third which imitates them.*
>
> Plato, *The Republic*

$$AVMEM(B,M,T) = 1 - E\left[\frac{C\cdot ADEX(B,M,T)}{SAT(M)}\right]$$

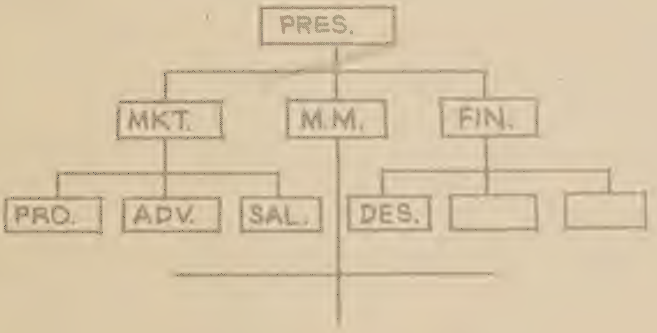
BA 370. POLICY FORMULATION AND ADMINISTRATION.

Mr. Partridge

Taking the viewpoint of the chief executive of the firm, the corporate objectives and strategy are examined in the context of the policy framework which raises the traditionally intuitive approach to the level of conscious analysis. The concept of corporate strategy, functions and limitations of strategy, criteria for and problems in evaluating strategy. The company's environment: identification of opportunities and risks as determinants of strategy, assessing company competence and resources. Strategy, personal values, self-expression and social responsibility; conflict of responsibility and final choice. Implementation of strategy: purpose, organization and relationships; co-ordination of divided responsibility; design of information system. Organizational processes: standards of measurement and performance; motivation and incentive; restraints and controls; the development of managers. Effecting major changes in strategy and organization.

Fall Semester Tuesdays at 7:00 p.m.

> *Let no act be done at haphazard, no otherwise than according to the finished rules that govern its kind.*
>
> Marcus Aurelius Antoninus, *Meditations*



BA 380. FINANCIAL MANAGEMENT.

Mr. O'Hara

The goal is to develop skills and judgment leading to the efficient accumulation and use of financial resources within the firm. Capital budgeting, cost of capital, capital structure and dividend policy are studied in detail, after which they are integrated with a view to maximizing the value of the firm to its owners. Interrelationships are explored through the use of simultaneous and sequential decision-making. Traditional theories in the area of financial management are compared and contrasted with actual practices in business finance. Case problems in finance are studied so that students can evaluate investment projects and programs and their financing. *Three semester hours.*

Fall Semester — Thursdays at 4:00 p.m.
Spring Semester — Thursdays at 7:00 p.m.

> *Money which represents the prose of life, and which is hardly spoken of in parlors without an apology, is, in its effects and laws, as beautiful as roses.*
>
> Emerson, *Essays 1844*

$$PV = \frac{A}{(1+R)^t}$$

BA 382. BUSINESS GOVERNMENT RELATIONS. Mr. Kilty

The course will review the changes that have occurred in the attitudes and responsibilities of the private and public sectors in the United States from the 1930's to the present. Through the study and examination of current phenomena such as the so-called military industrial complex, the industrial state and our urbanized society, an analysis will be made of the present and projected roles of business and government in the modern, technologically oriented society. While primary emphasis will be on the United States, reference also will be made, when appropriate, to the international scene. *Three semester hours.* Mondays at 7:00 p.m.

Fall Semester — Fridays at 4:00 p.m.

> *This conjunction of an immense military establishment and a large arms industry is new in the American experience. . . We recognize the imperative need for this development. Yet grave implications. . . In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.*

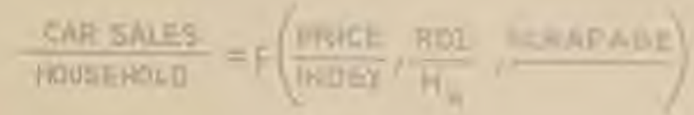
> Dwight David Eisenhower,
> *Farewell Radio and Television Address to the American People (January 17, 1961)*

BA 384. MARKETING THEORY. Mr. Wise

The study of optimizing criteria available to the marketing manager. Topics covered will include: demand theory and measurement, cost theory and measurement, pricing policies, optimal mix, product quality decisions, advertising, and competitive behavior. The course will concentrate on the analysis of policy decisions and the availability of information upon which to base these decisions. Students will be responsible for presenting part of the material covered in class.

Fall Semester Thursdays at 7:00 p.m.

> *In the times of Cuacuauhpitzaua [1375–1418] the merchant chiefs Itxcohuatzin and Tziuhtecatzin started the art of trade.*
> Translated from the Aztec . . . and quoted in Eells & Walton,
> *Conceptual Foundations of Business*, Irwin



BA 390. SEMINAR. Mr. Kilty

Normally the terminal course in the program. Application of concepts and techniques acquired in the program to real business problems in an original manner, or the extension of these concepts and techniques. Students are advised to consider their topics early in the program, and are welcome to attend the sessions. For information, see or call the Secretary of the Division. Students who plan to register should make their intention known at the time of fall registration. *Three semester hours.*

Spring Semester Occasional Fridays at 7:00 p.m.

> *The last act crowns the play.*
> Quarles, *Emblems*

BA 399. READINGS IN BUSINESS AND TUTORIAL. Staff

By arrangement with individual instructor.

BUSINESS WEEK
THEORIES OF MARKETING
THE AGE OF

> *. . . In the best books,*
> *great men talk to us,*
> *give us their most*
> *precious thoughts,*
> *and pour their souls*
> *into ours. God be thanked*
> *for books.*
> William Ellery Channing,
> *Self Culture*

EC 265. INTRODUCTION TO ECONOMETRICS. Mr. Puffer

The course will deal with those modifications to standard statistical theory necessary to adapt it to the analysis of economic data, particularly data in time series form. Some time will be spent on a brief review of elementary statistics with emphasis on regression, correlation and associated statistical tests. Since many of the concepts in the course are best illustrated with actual data, the students will be expected to collect a number of data series and do various types of analysis of them using a computer program to be supplied. Most of the course will be concerned with estimation and forecasting problems of single multiple regression equations and techniques for avoiding or easing these problems. Econometric model building techniques will be introduced along with some of the easier estimation techniques such as two-stage-least-squares. A comparison of the usefulness of econometric models with other techniques such as simulation models will be made. *Three semester hours.*

Fall Semester Tuesdays and Thursdays at 4:00 p.m.

> *The brightest flashes in the world of thought are incomplete until they have been proven to have their counterparts in the world of fact.*
> John Tyndall, *Fragments of Science*

Clark University
Summer School

Worcester, Massachusetts

Intersession, Days, June 8–June 26
Intersession, Nights, June 8–July 3
Summer Session, Days, July 3–August 15
Summer Session, Nights, July 6–August 15
Master of Business Administration Program, June 8–August 7

1970

CLARK UNIVERSITY BULLETIN

Number 309 April 1970

The Clark University Bulletin is published four times a year, in April, July, August, and September. Second-class postage paid at Worcester, Massachusetts. Correspondence may be addressed to: The Summer School, Clark University, Worcester, Massachusetts 01610.

Clark University Summer School

The offerings in the two Summer School sessions are designed to satisfy the academic and cultural needs of college students, professional people and the general public. Most of the courses will enable undergraduate and graduate students to accelerate their college careers by satisfying standard departmental requirements in the humanities and sciences. Of particular interest to graduate students are the courses in psychology, linguistics and foreign languages. Programs in economics and business administration are appropriate both to college students and business executives; several courses in education, linguistics, social science and film are available for high school teachers who seek professional advancement; and a scholarship program sponsored by the Department of Justice will enable policemen to enroll in relevant disciplines.

Courses new to the Clark Summer School, and of both academic and general interest, are "Mythology," "Population," "Communication Systems," and four courses in revolution—"The Second Sex: A Survey of the Female Experience in America," "Radical Religion in the 20th Century," "Revolution in Asia," and "The Beat and the Hip: American Literature of Disengagement and Dissent, 1950–1970." Evening classes in liberal arts and business will be offered for those who have part-time summer jobs during the day and wish to earn academic credit at the same time, as well as for those who are continuing their studies in the Clark University Evening College.

The University's new Robert Hutchings Goddard Library contains over 270,000 volumes and some 50,000 maps and charts. The major part of the collection is centrally housed, and an open-shelf system fosters free access to books and periodicals. Special studies at other Worcester institutes are available at the Worcester Art Museum, one of the finest small museums in the country; the American Antiquarian Society, whose collection of original source Americana is unmatched; and at Assumption College, which is sponsoring courses in linguistics, film and religion. In the surrounding area are many places of interest to the student. Boston, with its wealth of culture and entertainment, is an hour away, and Sturbridge Village, the antique center of New England, is a twenty-minute drive from Worcester.

General Information

All courses offered are accepted at Clark for credit toward the degree of Bachelor of Arts or the Evening College degrees of Bachelor of Science in General Studies, Bachelor of Science in Business Administration or Bachelor of Fine Arts unless specifically limited to one of the degrees stated in the course description. Many courses in the Summer School count toward the degrees of Master of Art, Master of Arts in Education and Doctor of Philosophy. Approval should, however, be obtained in advance from a student's major department.

ADMISSION

Completing and submitting the registration form located at the end of this catalog constitutes an application for admission to the Clark University Summer School. Admission is open to Clark University students, students from other institutions of higher education, adults with high school diplomas, and high school students competent to do college-level work in appropriate introductory courses. Acceptance into the Clark University Summer School does not constitute admission into Clark University.

REGISTRATION

Registration may be by mail or in person. Registration by mail is preferable since it will allow the Summer School to determine adequate course enrollment early and will help the student obtain a place in courses of limited enrollment. Procedure for registration is described in the form.

COURSES

a. Attendance: requirements for class attendance are determined by the individual instructor.

b. Credits: each single course offered in the Summer School is equivalent to a half-year course of the academic year and yields three semester hours of credit, unless otherwise specified in the course description. Credits for most courses are transferable to the Clark day school (unless otherwise specified); students from other schools should check with their registrar to determine transferability of Clark Summer School credits to their schools. Request transcripts for other schools from the Office of the Registrar, Clark University.

c. Course load: a student may carry in a normal program one course in the Intersession and two courses in the Summer Session. Permission to carry an additional course may be granted only in exceptional cases if approved in writing prior to registration. Course changes and changes from audit to credit or credit to audit must be approved by the Director.

d. Course level: number designation: 100—open to undergraduates; 200—open to undergraduates and, with permission from appropriate department chairman, graduate students; 300—open to graduate students and, with permission from appropriate department chairman, advanced undergraduates.

e. Grading system: the only grades acceptable are A, B, C, D, F. Incompletes may be given in exceptional circumstances; but they must be changed upon completion of course requirements or automatically revert to F. The dates for completion of incompletes are as follow:

Intersession—Day Courses—Monday, July 13
Intersession—Evening Courses—Monday, July 20
Summer Session—Day Courses—Monday, August 31
Summer Session—Evening Courses—Monday, August 31

f. Withdrawal: requests for withdrawal must be made in writing to the Director of the Summer School and will become effective upon receipt in the Summer School Office. Discontinuance of attendance or notice to the instructor does not constitute withdrawal. Partial refunds will be made only under these circumstances and in accordance with the following schedule:

Intersession—Days and Nights

June 8, 9	full refund
June 11, 12	two-thirds
June 15	one-third

Summer Session—Days

July 3, 6	full refund
July 7, 8	two-thirds
July 13	one-third

Summer Session—Nights

July 6, 7	full refund
July 8, 9	two-thirds
July 13	one-third

g. Cancellation: if there is insufficient demand for any course listed, it will not be given and the applicant will be notified prior to the opening of the Summer School. Tuition will be refunded in full for any course that does not run.

h. Additional courses: subject to demand, additional courses may be added.

TUITION AND FEES

A matriculation fee of $5.00 is required of all students entering Clark University for the first time. Each credit is $45.00; a normal three semester hour course is $135.00. For certain art and science courses, an equipment fee may be charged as specified in the course description. Persons who wish to audit a course without receiving credit will register and pay tuition at the stated rate; students taking two courses for credit during the Summer Session may audit a third course without additional cost. Tuition and fees must be paid in full in the Summer School office by mail or in person before the student may be considered formally enrolled in the course. A fee for late registration of $7.00 must be paid by students who fail to complete registration within the official registration period.

LIVING FACILITIES AND COSTS

Rooms will be available for both men and women in the new University dormitories, but reservations should be made promptly on or before June 1. Address requests to: Bob Smith, Coordinator of Summer Conference Programs, Summer School Office, Clark University, Worcester, Massachusetts 01610. Room rent is $14.00 (including linen supplies) per week for single room occupancy and $11.50 (including linen supplies) for double. A non-refundable deposit of $10.00 is required in advance to hold a room. In addition there is a $1.00 refundable key deposit.

FOOD SERVICE INFORMATION

Clark University will offer breakfast, lunch and supper in the Jefferson Hall Union, Monday through Friday, 7:30 a.m. to 6:30 p.m. Those who wish to participate in a full board program, 20 meals a week, served in the large Dining Hall, may purchase tickets at the daily rate price. The daily rate price depends upon participation of members of summer groups on campus.

MAIL SERVICE

Student mail will be distributed through individual boxes in the Central Services office located in Estabrook Hall. A $1.00 refundable key deposit is required.

LIBRARY HOURS

The Goddard Library at Clark University will be open Monday through Thursday, 9:00 a.m. to 8:00 p.m., and Friday, 9:00 a.m. to 5:00 p.m.

VETERANS

Veterans who are non-Clark students are reminded that Certificates of Eligibility held during the Spring Semester of 1970 do not apply to the Summer School and that a new application must be completed for the course of summer study.

ADMINISTRATIVE OFFICERS

Frederick H. Jackson, *President*
Seymour Wapner, *Provost*
Jefferson A. White, *Dean of the College*
Charles S. Blinderman, *Director of the Summer School*
Ann G. Schmucker, *Secretary of the Summer School*

Special Programs

THE AMERICAN LEADERSHIP STUDY GROUPS

The Clark University Summer School, in cooperation with the A.L.S.G., offers each summer a program of overseas study and travel. Academically, the program is concerned with the history and cultural foundations of Western Europe. It is five weeks in length (July 1–August 4) and includes week-long study periods at the universities of London, Rome and Paris.

Participation in the A.L.S.G. summer program is made available to suitably qualified high school upperclassmen and college students throughout the United States. The selection of members and alternates is based on scholarship, character, and in general an ability to assimilate and profit from the program offered. (Non-credit.)

TTT SUMMER INSTITUTE

A special Summer Institute for high school students, secondary school social science teachers, and college instructors will be sponsored jointly by the Clark University Graduate School and a Consortium of educational institutions in the greater Worcester area (Berlin-Boylston Schools, Worcester Public Schools, Leicester Junior College, Fitchburg State College). The Institute, sponsored by the United States Office of Education under the Education Professions Development Act, is designed to experiment with new methods and materials of teaching the social sciences and to provide opportunities for students to evaluate the effectiveness of these materials. Organized in conjunction with a new graduate degree program to train personnel in geography, economics, and history who intend to teach in teacher training institutions, the Institute will seek to open dialogue between students, teachers, and teachers of teachers. Participation will be limited to personnel and students in the Consortium.

THE M.B.A. PROGRAM

The Master of Business Administration program, now administered by the Division of Business Administration, was inaugurated in 1962 as an offering of the Clark Evening College. The program's aim continues to be the furthering of formal education in business for young executives, who study while remaining active in their careers. All courses are scheduled in the late afternoon and evening, thus serving the needs of part-time as well as full-time students. This arrangement provides an excellent opportunity for students without experience to develop close associations with practicing business executives.

Summer courses, running from June 8 to August 7, will cover topics in management, administration, and marketing. Please write to the Division of Business Administration, Clark University, Worcester, Massachusetts 01610, for a descriptive brochure and registration forms.

Course Offerings

INTERSESSION

BIOLOGY

ELECTRON MICROSCOPY BIO.—S.225

Joseph C. Curtis, Ph.D., *Associate Professor of Zoology*

Introduction to the principles of electron optics, use of the electron microscope, preparation of specimens and the techniques of electron microscopy applicable to biological investigations. Permission of the instructor required.

4 credits

Times to be arranged. First class meeting will be on June 8, 9:00 a.m.

BUSINESS ADMINISTRATION

BUSINESS LAW B.A.—S.20a

Reginald J. Smith, M.Ed., *Associate Professor of Law and Accounting, Holy Cross College*

A study of the legal basis of business and the principles of statutory and common law as they affect business relationships; covering such subjects as contracts, sales, agency, property partnerships, corporations, insurance and negotiable instruments. (This course is based on the Uniform Commercial Code.) No day school credit for Clark students.

Monday, Wednesday, Friday evenings, 6:00–9:00

PERSONNEL MANAGEMENT B.A.—S.112

Paul Schneiderman, M.B.A., *Instructor, Worcester Polytechnic Institute*

This course is designed to give the student a working acquaintance with the policies, methods, and functions of a personnel department. Emphasis is given to the institutional framework as well as motivational factors. No day school credit for Clark students.

Monday, Wednesday, Friday evenings, 6:00–9:00

CHEMISTRY

GENERAL CHEMISTRY CHEM.—S.11a

Edward N. Trachtenberg, Ph.D., *Associate Professor of Chemistry*

Introduction to the principles of chemistry. This course, which will systematically cover the chemistry of the elements and the fundamental laws of chemistry, is designed for the student, irrespective of formal scientific background, who either has interest in the physical or biological sciences, medicine or dentistry, or who wishes to learn and practice the scientific method as part of a liberal arts education.

Monday through Friday mornings, 9:00–10:50, plus laboratory periods,
Monday, Tuesday, Wednesday, Thursday afternoons, 1:00–4:00

ECONOMICS

PRINCIPLES OF ECONOMICS ECON.—S.111a

George T. Kelley, M.A., *Assistant Professor of Economics, Worcester State College*

An introduction to the fundamental economic principles, together with a study of the practical application of these principles to the problems of American life.

Monday, Wednesday, Friday evenings, 6:00–9:00

EDUCATION

INTRODUCTION TO AMERICAN EDUCATION ED.—S.209

Richard J. Gordon, Ph.D., *Assistant Professor of Education*

A comprehensive and systematic study of American Education with emphasis on recent innovations, the role of the states and the Federal Government in education, the structure and organization of the schools, and the status of teachers. Intended for prospective and in-service teachers and others with an interest in American education.

Monday, Wednesday, Friday evenings, 6:00–9:00

PHILOSOPHY OF EDUCATION ED.—S.290

John R. Scarborough, M.A., *Lecturer*

The purpose of this course is to consider the philosophical assumptions underlying educational systems. Consideration will be given to the purposes, methods and goals of education as applicable to the ideals of democracy. A wide range of authors will be used as resource materials in an attempt to develop a philosophy of education for the modern classroom.

Monday, Wednesday, Friday evenings, 6:00–9:00

THE ROLE OF EVALUATION IN EDUCATION ED.—S.313

Helen J. Kenney, Ed.D., *Associate Professor of Education, and Staff*

A comprehensive review of research and trends on the role of evaluation in the educative process. A major emphasis will be placed on the development and utilization of strategies to assess the effectiveness of educational innovations. This course is planned as a part of the graduate sequence in the program preparing educational analysts.

Monday through Friday afternoons, 3:00–5:00

APPLYING RESEARCH IN INSTRUCTION AND CURRICULUM DEVELOPMENT ED.—S.330

Helen J. Kenney, Ed.D., *Associate Professor of Education, and Staff*

Will provide a systematic review and appraisal of significant research on elementary and secondary curriculum materials and methods of teaching. Will also involve the development and try-out of curriculum units for classroom use based on differing rationales. This course is planned as a part of the graduate sequence in the program preparing educational analysts.

Monday, Wednesday, Friday evenings, 6:00–9:00

ENGLISH

MYTHOLOGY ENG.—S.30

Robert A. Barakat, M.A., *Assistant Professor of English*

This course is designed to introduce students to the major mythologies of the ancient world, including Greco-Roman, Middle Eastern, and Norse. Secondary reference will be made to Indian, North American Indian and Aztec myths for comparative purposes. In addition to the reading and discussion of myth in general, their form, structure, and motifs will also be detailed as will their function and possible origins.

Monday, Wednesday, Friday evenings, 6:00–9:00

THE SHORT STORY ENG.—S.125

William H. Carter, Ph.D., *Professor of English*

This course involves the intensive reading of a wide range of stories which exemplify a variety of fictional methods, affording the student some knowledge of the history of this literary type. The primary aim is to help the student develop an appreciation of the broadly human values implicit in the short story.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

THE BEAT AND THE HIP: AMERICAN LITERATURE OF DISENGAGEMENT AND DISSENT, 1950–1970 ENG.—S.130

Andrew Clark, M.A., *Visiting Instructor in English*

This course examines the emergence of a literature of protest, dissent and alienation in America in the last two decades. Readings focus primarily on the Beat Generation of the late fifties and psychedelic writing of the sixties, together with supplementary essays on political, social and cultural unrest. Writers include Mailer, Kerouac, Ginsberg, Ferlinghetti, Gelber, Kesey, Burroughs, Farina and Tom Wolfe. Illustrative material will include jazz, folk and rock music.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

SHAKESPEARE ENG.—S.213

Karl O. E. Anderson, Ph.D., *Professor of English*

A study of the eight major plays (comedies, histories, and tragedies), aimed to bring out the development of Shakespeare as a dramatist and to trace the changes in his attitude towards life. The plays to be read are: *Romeo and Juliet*, *Richard II*, *Henry IV, Part I*, *As You Like It*, *Hamlet*, *Lear*, *Othello*, and *Macbeth*.

Monday, Wednesday, Friday evenings, 6:00–9:00

FINE ARTS

ART STUDIO WORKSHOP F.A.—S.100

John T. Murphey, B.S., *Assistant Professor of Fine Arts*

An art involvement course designed for those with little or no experience in art production in which the student will experiment in class in a variety of mediums and approaches to increase his understanding as well as his ability in the visual arts. Projects will include representational drawing, still life painting, statements in meaning, abstract painting, action-painting, collage, clay sculpture, constructions, "found-objects," environments, and happenings. Grade rests on effort and understanding. Daily homework. There will be an additional fee for materials of about $25.00 payable at the first meeting. Enrollment limited to 20 students.

Monday, Wednesday, Friday evenings, 6:00–9:00

MICHELANGELO AND THE HIGH RENAISSANCE F.A.—S.155

Samuel P. Cowardin, Ph.D., *Associate Professor of Fine Arts*

This course will concentrate on Michelangelo's work in architecture, sculpture, and painting, taking into account personal, religious, intellectual, and political influences in his life. His style will be viewed in relation to the Renaissance background as well as the Mannerist trends of the sixteenth century. Readings, class discussions with slides, and a paper.

Monday, Wednesday, and Friday mornings, 9:00–12:00

HISTORY OF CINEMA F.A.—S.161

The Rev. Gene D. Phillips, S.J., *Lecturer, Fordham University*

The development of the motion picture as an art form is studied in the context of its history from the beginning to the present. Some of the significant directors whose work will be considered will be D. W. Griffith, Sergei Eisenstein, Orson Welles, Alfred Hitchcock, and representatives of the Italian Neo-Realism, British Social Realism, and the French New Wave. Samples from the work of these directors and short films will be used to illustrate the class material.

Monday, Wednesday, Friday evenings, 6:00–9:00

THE MOTION PICTURE: DIRECTORS AND SOCIAL INVOLVEMENT

F.A.—S.162

Paul Deane, Ph.D., *Associate Professor of English, Bentley College*

The contributions of several directors of motion pictures who have had major impact upon film history and development, such as Griffith, Eisenstein, Welles, and Antonioni. Subject matter is limited to the themes of alienation, war, and social unrest. Students will examine such films as *Birth of a Nation*, *The Cabinet of Dr. Calicari*, *Potemkin*, *Citizen Kane*, and *Blow-Up*.

Monday, Wednesday, Friday mornings, 9:00–12:00

GERMAN

MODERN GERMAN PROSE GER.—S.130

Walter Schatzberg, Ph.D., *Associate Professor of German*

Readings of selected works by Mann, Hesse, Kafka, Grass. Lectures, discussions, oral and written reports. Given in English.

Monday, Wednesday, Friday mornings, 9:00–12:00

GOVERNMENT AND INTERNATIONAL RELATIONS

INTRODUCTION TO AMERICAN GOVERNMENT GOVT.—S.15

Kathleen Fitzgerald, M.A., *Instructor, Colby Junior College*

A short survey of the theories of the origins and purposes of the state is followed by a study of American government with emphasis on contemporary problems of the federal government.

Monday, Wednesday, Friday mornings, 9:00–12:00

HISTORY

POPULATION HIST.—S.152

Gordon M. Weiner, Ph.D., *Assistant Professor of History, Arizona State University*

Population changes from the Middle Ages to recent times. The focus will be primarily European, and will concentrate on causes and effects of changes in fertility and mortality. The economic, social and political interrelationships of these changes will also be discussed.

Monday, Wednesday, Friday mornings, 9:00–12:00

ORIGINS OF WORLD WAR I HIST.—S.114

Robert J. Smith, M.A., *Lecturer in International Relations*

A study of the origins of the First World War. Various interpretations of the causes of the war, and the diplomatic crises which led to the impasse in 1914, will be emphasized. Internal political problems that had an indirect influence on the outbreak of the conflict will also be stressed.

Monday, Wednesday, Friday evenings, 6:00–9:00

MATHEMATICS

FUNDAMENTALS OF MATHEMATICS MATH.—S.11a

Robert J. Perry, M.A., *Assistant Professor of Mathematics, Worcester State College*

A logical development of elementary mathematics: including an axiomatic treatment of the real number system, arithmetic and elementary algebra, functions and relations, polynomials and topics from the theory of equation, introductory analytic geometry and the exponential, logarithmic, and trigonometric function. As a background, the arithmetic and algebra over arbitrary sets will first be considered.

Monday, Wednesday, Friday evenings, 6:00–9:00

CALCULUS MATH.—S.12a

Bernard Howard, M.A., *Assistant Professor of Mathematics*

A first course in calculus. The main topics to be covered will be differentiation, integration and related topics including related rates, max-min problems, mean value theorems, volumes, areas, moments, transcendental functions, determinants, and polar coordinates. Must be taken in both Intersession and Summer Session. Two credit hours in Intersession; 4 credit hours in Summer Session.

Intersession: Monday through Friday mornings, 9:00–11:20
Summer Session: Monday through Friday mornings, 9:00–11:00

PHILOSOPHY

EXISTENTIALISM PHIL.—S.19a

Gary E. Overvold, Ph.D., *Assistant Professor of Philosophy*

Examination of the major literature of existentialist thought, with emphasis on its significance to the contemporary world.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

PSYCHOLOGY

INTRODUCTORY PSYCHOLOGY PSYCH.—S.11a

Donald G. Stein, Ph.D., *Associate Professor of Psychology*

An introduction to the principles of human behavior.

Monday, Wednesday, Friday evenings, 6:00–9:00

PSYCHOLOGY OF PREJUDICE PSYCH.—S.127

Bernard Kaplan, Ph.D., *Professor of Psychology*

A biased presentation of the factors that lead individuals to be prejudiced against other individuals and group members. Theories of prejudice (psychoanalytic, psycho-social) will be examined and empirical studies on the correlates of prejudice will be discussed. Limited to 12 students. Permission of the instructor required.

Times to be arranged. First meeting scheduled for 9:00 a.m., June 8.

SOCIAL PSYCHOLOGY PSYCH.—S.170

James D. Laird, Ph.D., *Assistant Professor of Psychology*

Theories, concepts, and research of social psychology are introduced by considering their relevance to contemporary social issues, such as race relations, alienation, generational estrangement, conformity, culture and culture change, democracy.

Monday, Wednesday, Friday evenings, 6:00–9:00

ROMANCE LANGUAGES

THE TWENTIETH CENTURY FRENCH NOVEL FR.—S.210

Pierre L. Horn, M.A., *Assistant Professor of Romance Languages*

Readings and discussions of the representative novels of the period as social, philosophical, and literary documents. Authors to be studied include: Gide, Malraux, Sartre, Camus, and others. Given in English.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

SOCIOLOGY

CIVIL LIBERTIES SOC.—S.51

Charles S. Blinderman, Ph.D., *Professor of English,*
Director of LEEP Program

The course will cover the nature and expression of civil liberties both in historical and contemporary contexts, focusing on the freedoms granted by the Bill of Rights. Among the topics to be discussed will be: obscenity, the psychedelic culture, birth control and abortion, publicly sponsored prayers and other religious practices, and protest. For law-enforcement personnel; others may enroll on permission of instructor.

Monday, Wednesday, Friday evenings, 6:00–9:00

THE ANTHROPOLOGY OF ARMED CONFLICT AND VIOLENCE

SOC.—S.273

Stanford N. Gerber, Ph.D., *Assistant Professor of Social Anthropology*
and Sociology

A seminar in the cross-cultural study of conflict and violence. Theoretical perspectives and ethnographic data will be utilized. Use of films and slides. Limited to 15 students.

Times to be arranged. First meeting scheduled for June 8, 9:00 a.m.

Courses taught at Assumption College of particular interest to Clark University students:

ASSOCIATION FOR SOCIAL AND REHABILITATION SERVICES
- HEARING AND DEAFNESS
- THERAPEUTIC EDUCATION OF THE DISABLED AND DISADVANTAGED

OCEANOGRAPHY

ECOLOGY

THE HISTORY OF FILM

THE SOCIAL STRATIFICATION OF LANGUAGE

For information on enrollment procedure, write to:

Director, Summer School
Assumption College
Worcester, Massachusetts 01609

SUMMER SESSION

BIOLOGY

GENERAL BIOCHEMISTRY BIO.—S.270

John J. Brink, Ph.D., *Associate Professor of Biochemistry*

The principles of mechanisms of biochemical reactions in an understanding of the metabolism of foodstuffs and the role of enzymes, nucleic acids and hormones. An acquaintance with the instrumentation in biochemical research will be presented. Two laboratories per week. Prerequisite: Organic Chemistry.

Monday, Wednesday, Friday mornings, 9:00–11:00

BUSINESS ADMINISTRATION

BUSINESS LAW B.A.—S.20b

Reginald J. Smith, M.Ed., *Associate Professor of Law and Accounting, Holy Cross College*

A study of the legal basis of business and the principles of statutory and common law as they affect business relationships; covering such subjects as contracts, sales, agency, property partnerships, corporations, insurance and negotiable instruments. (This course is based on the Uniform Commercial Code.) No day school credit for Clark students.

Tuesday, Thursday evenings, 6:00–9:00

ANALYSIS OF BUSINESS PROBLEMS* B.A.—S.220a, b

Irwin A. Shapiro, M.B.A., *Assistant Professor of Economics and Management, Lowell Technological Institute*

An intensive analysis of specific problems of administration and policymaking. Designed to integrate the principles covered in more specialized courses in Business Administration in order that the student may acquire an appreciation of the broad business picture while developing his ability to view business and economic problems from an overall standpoint. Open only to advanced Business Administration candidates. Limited to 12 students. No day school credit for Clark students.

Monday, Wednesday, Friday evenings, 6:00–10:00

6 credits

*Double course.

CHEMISTRY

GENERAL CHEMISTRY CHEM.—S.11b

Edward N. Trachtenberg, Ph.D., *Associate Professor of Chemistry*

Introduction to the principles of chemistry. This course, which will systematically cover the chemistry of the elements and the fundamental laws of chemistry, is designed for the student, irrespective of formal scientific background, who either has interest in the physical or biological sciences, medicine or dentistry, or who wishes to learn and practice the scientific method as part of a liberal arts education.

Monday through Friday mornings, 9:00–10:50, plus laboratory periods,
Tuesday, Thursday afternoons, 1:00–4:00

5 credits

ECONOMICS

LABOR ECONOMICS ECON.—S.22a

Donald Wise, M.A., *Assistant Professor of Economics*

A survey of the nature of labor economics and labor problems, including several approaches of organized workers and employers to these problems.

Monday, Wednesday, Friday mornings, 9:00–11:00

PRINCIPLES OF ECONOMICS ECON.—S.111b

George T. Kelley, M.A., *Assistant Professor of Economics,*
Worcester State College

An introduction to the fundamental economic principles, together with a study of the practical application of these principles to the problems of American life.

Tuesday, Thursday evenings, 6:00–9:00

MONEY AND BANKING ECON.—S.113

Leon S. Graubard, M.A., *Assistant Professor of Economics,*
Worcester Polytechnic Institute

Introduction to money and credit; commercial banking and the Federal Reserve System; theoretical and empirical findings concerning the impact of monetary policy on the allocation of resources, employment, and prices; current controversies concerning both domestic and foreign monetary policy.

Tuesday, Thursday evenings, 6:00–9:00

URBAN ECONOMICS ECON:—S.145

Donald Wise, M.A., *Assistant Professor of Economics*

An analysis of the economic problems of an urban environment. Primary attention will be given to the development of slums in the intercity.

Tuesday, Thursday mornings, 9:30–12:30

EDUCATION

INTRODUCTION TO AMERICAN EDUCATION ED.—S.209

Richard J. Gordon, Ph.D., *Assistant Professor of Education*

A comprehensive and systematic study of American education with emphasis on recent innovations, the role of the states and the Federal Government in education, the structure and organization of the schools, and the status of teachers. Intended for prospective and in-service teachers and others with an interest in American education.

Monday, Wednesday, Friday evenings, 8:00–10:00

TESTS AND EVALUATION ED.—S.314

David Quist, M.A., *Clinical Instructor, Department of Education*

The methods and problems involved in the evaluation of abilities, interests and achievement of children and youth. Attention will be given both to standardized instruments and to teacher-made tests of achievement.

Tuesday, Thursday evenings, 6:00–9:00

ORGANIZATION AND ADMINISTRATION OF GUIDANCE ED.—S.321a

Spencer R. Potter, Ed.D., *Assistant Professor of Education*

There will be two areas of emphasis: 1) consideration of the organization and work of the guidance/pupil personnel "team" within the school system, and 2) exploration and discussion of community agencies and the means by which cooperation between schools and agencies may effect a wider range of pupil support and development. This is a graduate level course for advanced students and those with experience as school guidance counselors.

Tuesday, Thursday evenings, 6:00–9:00

ADVANCED GRADUATE INTERNSHIP IN EDUCATION ED.—S.379

Staff

Times to be arranged

ENGLISH

INTRODUCTION TO LITERATURE ENG.—S.10a

David D. Britt, Ph.D., *Assistant Professor of English, Wabash College*

This course deals with the problems common to all literary genres—such as handling of diction, imagery, point of view, tone, and structure—but the section will have its own set of readings focused on a particular concept or theme. The study of the unique mode of expression appropriate for each of these literary forms will be organized around the theme of man's encounter with the absurd.

Monday through Friday mornings, 10:30–11:40

INTRODUCTION TO FOLKLORE ENG.—S.15

Robert A. Barakat, M.A., *Assistant Professor of English*

This course is designed to acquaint the student with scholarly methods for the study of the oral traditions of past and present cultures throughout the world. Particular emphasis will be placed upon the folktale, myth, and legend and their relation to literature, with a secondary emphasis upon superstition, magic, and folk music. Methods for collecting folklore will be discussed in some detail and the student will have an opportunity to collect material in the field.

Monday, Wednesday, Friday evenings, 6:00–8:00

CREATIVE WRITING ENG.—S.16

Stanley Sultan, Ph.D., *Professor of English*

A course designed to cultivate and guide student work in the short story, the lyric poem, and the informal essay. Class meetings deal largely with important aspects of the art of fiction; published literary works and student manuscripts are discussed.

Monday evenings, 8:00–10:00 with tutorial hours by appointment

COMMUNICATION SYSTEMS ENG.—S.100

Robert A. Barakat, M.A., *Assistant Professor of English*,
and George F. McCleary, M.S., *Assistant Professor of Geography*

An examination of verbal and non-verbal communication systems (including spoken and written forms, as well as kinesics, proxemics, and graphic and quantitative expression). Permission of the instructor required.

Monday through Friday mornings, 9:00–10:10

CONTEMPORARY AMERICAN FICTION ENG.—S.106

James F. Beard, Jr., Ph.D., *Professor of English*

A critical introduction to the best American fiction since about 1900, with emphasis on its aesthetic values, sociological insight, and philosophic implications. Authors read and discussed will include: Henry James, Theodore Dreiser, F. Scott Fitzgerald, Sherwood Anderson, Ernest Hemingway, William Faulkner, Truman Capote, J. D. Salinger, Norman Mailer, James Purdy, Saul Bellow and others.

Monday, Wednesday, Friday evenings, 6:00–8:00

THEATRE SINCE WORLD WAR II ENG.—S.129b

Neil R. Schroeder, Ph.D., *Associate Professor of English*

The course covers the period from before World War II to the present and examines several of the major post-war movements in theatre, including black theatre, and some of the non-dramatic forms which they have produced, including film.

Monday, Wednesday, Friday evenings, 8:00–10:00

SEMINAR: SPECIAL STUDIES IN RENAISSANCE DRAMA ENG.—S.206

Neil R. Schroeder, Ph.D., *Associate Professor of English*

Topic: Marlowe and Jacobean Tragedy. An intensive study of the complete plays of Christopher Marlowe and selected plays of the major Jacobean playwrights, including such figures as Chapman, Webster, Tourneur, Marston, and Ford. Permission of the instructor required.

Monday, Wednesday, Friday mornings, 9:00–11:00

3 credits: undergraduate
4 credits: graduate

THE BLACK IN AMERICAN LITERATURE ENG.—S.116

David D. Britt, Ph.D., *Assistant Professor of English, Wabash College*

This course will explore the nature of the black experience as it is depicted in the literature of both black and white writers. The focus will be on the black protest writers of the forties and fifties: Wright, Hughes, Baldwin, and Ellison. The fiction by these men will be studied both as literature and as documents that reveal the patterns of white oppression and black emotional response.

Monday through Friday mornings, 9:00–10:10

POE, HAWTHORNE AND MELVILLE ENG.—S.233

James F. Beard, Jr., Ph.D., *Professor of English*

A study of selected short stories, longer fiction and criticism by Poe, Hawthorne and Melville; their philosophical assumptions, symbolic techniques, and artistic accomplishments. Primarily for advanced undergraduates and graduate students.

Monday, Wednesday, Friday evenings, 8:00–10:00

3 credits: undergraduate
4 credits: graduate

INTRODUCTION TO LINGUISTICS ENG.—S.240

Louis G. Heller, Ph.D., *Associate Professor of Classical Languages and Hebrew, The City College, City University of New York*

A study of the theory and methodology of descriptive linguistics. The course deals with the nature and function of language, the relation between speech and writing, phonology, morphology, syntax, lexicology, the sociocultural setting of language, the contact of linguistic systems, and the problems of "correctness." Emphasis is placed upon the dynamics of systems analysis.

Monday, Wednesday, Friday mornings, 10:25–11:40
plus special conference hours

3 credits: undergraduate
4 credits: graduate

THE STRUCTURE OF MODERN AMERICAN ENGLISH ENG.—S.255

Louis G. Heller, Ph.D., *Associate Professor of Classical Languages and Hebrew, The City College, City University of New York*

An analysis of the grammatical structure of Modern American English, utilizing the insights of major linguistic approaches.

Monday, Wednesday, Friday afternoons, 12:00–1:15
plus special conference hours

3 credits: undergraduate
4 credits: graduate

THE LINGUISTIC GEOGRAPHY OF NORTH AMERICAN ENGLISH ENG.—S.256

Marshall D. Berger, Ph.D., *Associate Professor of Speech, The City College, City University of New York*

Patterns of linguistic diffusion: population movements, and influences of technology, education, and other parameters.

Monday, Wednesday, Friday afternoons, 12:00–1:15
plus special conference hours

3 credits: undergraduate
4 credits: graduate

FINE ARTS

INTRODUCTION TO THE HUMANITIES F.A.—S.10

Paul C. Deane, Ph.D., *Associate Professor of English, Bentley College*

This course will discuss the nature, function, and basic methods of the arts; important art movements, such as Classicism, Romanticism, Abstraction; and the way specific works of art reveal aesthetic principles and comment on human condition.

July 6–July 24, Monday, Wednesday, Friday evenings, 6:00–9:00

INTRODUCTION TO WESTERN ART F.A.—S.11

John Baker, M.A., *Lecturer*

This course will be devoted to an investigation of aspects of the evolution of Western Art from ancient Greece through the twentieth century. It will concentrate on a limited number of the key turning points in the history of the evolution of artistic styles. It is hoped that this will provide the student with the opportunity to reflect critically upon the methods and assumptions of the art historians whose work he will read. Class discussions will be welcomed and the formation of an independent critical outlook will be encouraged.

Monday, Wednesday, Friday mornings, 9:00–11:00

INTRODUCTION TO DRAWING, PAINTING, AND DESIGN F.A.—S.105

Sante Graziani, M.F.A., *Associate Professor (affiliate) of Fine Arts*

A course aiming to acquaint the student with the fundamentals of studio practice in drawing, painting and design.
Taught at Worcester Art Museum.

Tuesday, Thursday mornings, 9:30–12:30

MULTI-MEDIA ART WORKSHOP F.A.—S.115

Harriet Casdin Silver, A.B., *Lecturer*

An experimental studio course integrating various aesthetic media. Multi-media in final form may be environment, assemblage, construction, happening, theater performance and many other shapes or states of creativity to which titles have not yet been assigned. Fundamentals of structure—design, color, spatial and linear flow, pace, composition—will be presented and explored. This course is open to both beginners and more advanced students; individual projects will be assigned. Limited to 12 students. No day school credit for Clark students.

Tuesday, Thursday evenings, 6:00–9:00

ORIENTAL ART F.A.—S.190

Changboh Chee, Ph.D., *Assistant Professor in Sociology and Anthropology, Long Island University*

A study of the aesthetic principles and related techniques of the Far Eastern arts; Chinese, Japanese, Korean, and Indian with special attention to the relationships between the philosophical and religious backgrounds and the aesthetic expressions in their paintings, architecture, and poetry literature.

Monday, Wednesday, Friday evenings, 6:00–8:00

GERMAN

ELEMENTARY GERMAN FOR READING PURPOSES* GER.—S.105a, b

Walter Schatzberg, Ph.D., *Associate Professor of German*

This course is designed to develop a reading knowledge of German. Fundamentals of grammar; reading of varied German texts of graded difficulty.

Monday through Friday mornings, 9:15–10:25 and 11:45–12:55

6 credits

*Double course.

GOVERNMENT

BLACK POLITICAL THOUGHT GOVT.—S.206

Knud Rasmussen, Ph.D., *Associate Professor of Government*

This course will trace a conscious development within the black community starting from the slave society and moving to the present. In the process, three lines of thought will be developed: a) the political thought of accommodation, b) the political thought of protest, and c) the political thought of revolutionary confrontation. There will be a series of films and guest speakers to cover material not included in the required reading.

Tuesday, Thursday mornings, 9:30–12:30

HISTORY

THE ORIGINS OF WORLD WAR II HIST.—S.115

Donald E. O'Connor, M.A., *Lecturer*

An examination of the political and economic causes of World War II with particular attention given to reparations, appeasement and arms control. Recent controversial interpretations as to the origins of the war will be carefully examined.

Monday through Friday evenings, 7:30–8:40

THE COLD WAR HIST.—S.150

Robert J. Smith, M.A., *Lecturer in International Relations*

An analysis of the conflict between the Soviet Union and the United States. Lectures and discussions will attempt to clarify the aspects of the origins and development of the Cold War since World War II.

Monday, Wednesday, Friday evenings, 6:00–8:00

THE NEGRO IN AMERICAN HISTORY HIST.—S.138

Martin S. Goldman, M.A., *Lecturer*

A survey of the history of the black man in America from his introduction as a slave to the present Black Power revolution. Primary emphasis will be placed on the period after 1865 where topics such as Black Reconstruction, the Negro in Northern Politics, the rise of the urban ghetto, the Harlem Renaissance and the Civil Rights Revolution from the New Deal to the 1960's will be explored in depth. There will be team teaching in the course.

Monday, Wednesday, Friday mornings, 9:00–11:00

MATHEMATICS

FUNDAMENTALS OF MATHEMATICS MATH.—S.11b

Robert J. Perry, M.A., *Assistant Professor of Mathematics,*
Worcester State College

See description under Intersession. Prerequisite: Math.—S.11a.

Monday, Wednesday, Friday evenings, 6:00–8:00

CALCULUS MATH.—S.12b

Bernard Howard, M.A., *Assistant Professor of Mathematics*

See description under Intersession. Prerequisite: Math.—S.12a. Indivisible course.

Monday through Friday mornings, 9:00–11:00

4 credits

THEORY OF NUMBERS MATH.—S.115

Stephen Baron, Ph.D., *Assistant Professor of Mathematics*

This course will be of interest to teachers of elementary and high school mathematics as well as mathematics majors concerned with axiomatics and the properties of integers. It will include the development of the theory of natural numbers from Peano's Postulates, divisibility properties and prime decomposition.

Monday through Friday mornings, 10:30–11:40

PROBABILITY AND STATISTICS MATH.—S.117

G. Clinton Sornberger, Ph.D., *Assistant Professor of Mathematics, Worcester Polytechnic Institute*

A presentation of the mathematical foundations and structure of probability and statistics. Designed for undergraduates with at least two semesters of calculus. Prerequisite: two semesters of calculus.

Monday through Friday afternoons, 1:00–2:10

PSYCHOLOGY

ABNORMAL PERSONALITY PSYCH.—S.103

Morton Weiner, Ph.D., *Professor of Psychology*

An analysis of the concepts used to explain the development of the abnormal personality and a survey of the major types of deviant behavior. Prerequisite: Introductory Psychology.

Monday, Wednesday, Friday mornings, 9:00–11:00

PSYCHOLOGY OF LOVE AND HATE PSYCH.—S.128

Bernard Kaplan, Ph.D., *Professor of Psychology*

An examination of the role of passions in personal and social life. The interrelations of love and hate will be discussed as they influence family life, parent-child relations, social movements. Limited to 12 students. Permission of the instructor required.

Times to be arranged. First meeting scheduled for 9:00 a.m., July 3

ROMANCE LANGUAGES

ELEMENTARY SPANISH* SP.—S.11a, b

Raymond E. Barbera, Ph.D., *Professor of Romance Languages*

Designed to provide a basic foundation for a good listening, speaking and reading knowledge of Spanish. Extensive use will be made of the language laboratory.

Monday through Fridays, 9:00–10:10 and 1:00–2:10

6 credits

*Double course.

THE NINETEENTH CENTURY FRENCH NOVEL FR.—S.200

Pierre L. Horn, M.A., *Assistant Professor of Romance Languages*

Lectures, class discussions, and readings in English. Outstanding novels from Chateaubriand to the Naturalists, with emphasis on those by Stendhal, Balzac, Flaubert, and Zola.

Monday, Wednesday, Friday mornings, 9:00–11:00

SOCIOLOGY

PEOPLES OF THE WORLD SOC.–S.12

Paul A. Erickson, M.A., *Lecturer*

An introductory course in Cultural Anthropology designed to acquaint students comparatively with a selection of peoples and cultures different from our own as an aid to objective analysis of contemporary society and as a basis for useful generalizations about human social behavior. A foundation course for advanced work in Sociology. No day school credit for Clark students.

Tuesday, Thursday evenings, 6:00–9:00

RACE RELATIONS SOC.—S.126

Mario Montano, Ph.D., *Assistant Professor of Sociology*

A sociological analysis of "race." Courses and functions of racism in contemporary society, with special emphasis on Western Europe and the United States.

Tuesday, Thursday evenings, 6:00–9:00

REVOLUTION IN ASIA SOC.—S.150

Changboh Chee, Ph.D., *Assistant Professor of Sociology and Anthropology,*
Long Island University

The course will relate modern revolutionary movements and achievements in Asia to historical, philosophical, and artistic influences. Emphasis will be placed on the sociological context from which revolution grows.

Monday through Friday mornings, 10:30–11:40

RADICAL RELIGION IN THE 20TH CENTURY SOC.—S.201

Charles W. Estus, Ph.D., *Assistant Professor of Sociology,*
Assumption College

An examination of the emergent forms of Christianity and Judaism and those social, economic, political, and cultural factors in the 20th century which appear related to such new forms. Attention will be given to national and international crises—precipitated by racism, poverty, technology, militarism, neo-colonialism, the cold war, and the third world—as they relate to the theologies of the left as well as those of the right. Special consideration will be given to the death-of-God and revolutionary theologies.

Monday, Wednesday, Friday evenings, 6:00–8:00

THE LEGAL ORDER, SOCIAL CONTROL AND SOCIETY SOC.—S.225

Frederick W. Killian, Ph.D., *Associate Professor of Sociology*

A study of the legal phenomenon and its function as a means of social control in our society; the impact of law on our major social institutions; the direction of legal control, now and hereafter; a critique of the system.

Monday through Friday mornings, 10:30–11:40

THE SECOND SEX: A SURVEY OF THE FEMALE EXPERIENCE IN AMERICA SOC.—S.240

Mie Watanabe, Ph.D., *Instructor*

Is "women's inferiority" due to inherent nature or cultural conditioning? Students will engage in a critical analysis of women's roles and men's roles in contemporary American society. Emphasis will be placed on the function of sex roles in maintaining social control and economic exploitation. There will be lectures, panel discussions and films. Small groups will be organized by the students for more intense discussion. Child-care arrangements will be made.

Tuesday, Thursday evenings, 6:00–9:00
with additional meetings to be arranged

4 credits

SOCIAL ACTION SOC.—S.268

Stanford N. Gerber, Ph.D., *Assistant Professor of Sociology*

A critical evaluation of anthropological, sociological, and literary sources and their applications to contemporary social problems. Limited to 15 students.

Tuesday, Thursday mornings, 9:30–12:30

COURSE SCHEDULE

INTERSESSION—DAY CLASSES—JUNE 8–JUNE 26

9:00–10:50 a.m., Monday through Friday:

*Chem.—S.11a	General Chemistry	Trachtenberg

9:00 a.m. and 2:00 p.m., Monday through Friday:

Eng. —S.125	The Short Story	Carter
Eng. —S.130	The Beat and the Hip	Clark
Fr. —S.210	The 20th Century French Novel	Horn
Phil. —S.19a	Existentialism	Overvold

3:00–5:00 p.m., Monday through Friday:

Ed. —S.313	The Role of Evaluation in Education	Kenney and Staff

9:00–11:20 a.m., Monday, Wednesday, Friday:

Math. —S.12a	Calculus	Howard

9:00–12:00 noon, Monday, Wednesday, Friday:

F.A. —S.155	Michelangelo and the High Renaissance	Cowardin
F.A. —S.162	The Motion Picture	Deane
Ger. —S.130	Modern German Prose	Schatzberg
Govt. —S.15	Introduction to American Government	Fitzgerald
Hist. —S.152	Population	Weiner

Times to be Arranged:

Bio. —S.225	Electron Microscopy	Curtis
Psych. —S.127	The Psychology of Prejudice	Kaplan
Soc. —S.273	The Anthropology of Armed Conflict and Violence	Gerber

*General Chemistry also meets for laboratory periods, Monday through Thursday afternoons, 1:00–4:00.

INTERSESSION—EVENING CLASSES—JUNE 8–JULY 3

6:00–9:00 p.m., Monday, Wednesday, Friday:

B.A. —S.20a	Business Law	Smith
B.A. —S.112	Personnel Management	Schneiderman
Econ. —S.111a	Principles of Economics	Kelley
Ed. —S.209	Introduction to American Education	Gordon
Ed. —S.330	Applying Research in Instruction and Curriculum Development	Kenney and Staff
Ed. —S.290	Philosophy of Education	Scarborough
Eng. —S.30	Mythology	Barakat
Eng. —S.213	Shakespeare	Anderson
F.A. —S.100	Art Studio Workshop	Murphey
F.A. —S.161	History of Cinema	Phillips
Hist. —S.114	Origins of World War I	Smith
Math. —S.11a	Fundamentals of Mathematics	Perry
Psych. —S.11a	Introductory Psychology	Stein
Psych. —S.170	Social Psychology	Laird
Soc. —S.51	Civil Liberties	Blinderman

SUMMER SESSION—DAY CLASSES—JULY 3–AUGUST 15

9:00–10:10 a.m., Monday through Friday:

Eng. —S.100	Communication Systems	Barakat, McCleary
Eng. —S.116	The Black in American Literature	Britt

9:00–10:50 a., Monday through Friday:

*Chem.—S.11b	General Chemistry	Trachtenberg

9:00–11:00 a.m., Monday through Friday:

Math. —S.12b	Calculus	Howard

9:00–10:10 a.m. and 1:00–2:10 p.m., Monday through Friday:

Span. —S.11a, b	Elementary Spanish	Barbera

9:15–10:25 a.m. and 11:45–12:55 p.m., Monday through Friday:

Ger. —S.105a, b	Elementary German for Reading Purposes	Schatzberg

10:30–11:40 a.m., Monday through Friday:

Eng. —S.10a	Introduction to Literature	Britt
Math. —S.115	Theory of Numbers	Baron
Soc. —S.150	Revolution in Asia	Chee
Soc. —S.225	The Legal Order, Social Control and Society	Killian

1:00–2:10 p.m., Monday through Friday:

Math. —S.117	Probability and Statistics	Sornberger

*General Chemistry also meets for laboratory periods Tuesday and Thursday afternoons, 1:00–4:00.

9:00–11:00 a.m., Monday, Wednesday, Friday:

Bio. —S.270	General Biochemistry	Brink
Econ. —S.22a	Labor Economics	Wise
Eng. —S.206	Special Studies in Renaissance Drama	Schroeder
F.A. —S.11	Introduction to Western Art	Baker
Fr. —S.200	The 19th Century French Novel	Horn
Hist. —S.138	The Negro in American History	Goldman
Psych. —S.103	Abnormal Personality	Weiner

10:25–11:40 a.m., Monday, Wednesday, Friday:

Eng. —S.240	Introduction to Linguistics	Heller

12:00–1:15 p.m., Monday, Wednesday, Friday:

Eng. —S.255	The Structure of Modern American English	Heller
Eng. —S.256	The Linguistic Geography of N.A. English	Berger

9:30–12:30 p.m., Tuesday, Thursdays:

Eng. —S.314	Tests and Evaluation	Quist
Econ. —S.145	Urban Economics	Wise
F.A. —S.105	Introduction to Drawing, Painting, Design	Graziani
Govt. —S.206	Black Political Thought	Rasmussen
Soc. —S.268	Social Action	Gerber

Times to be Arranged:

Ed. —S.379	Advanced Graduate Internship in Education	Staff
Psych. —S.128	The Psychology of Love and Hate	Kaplan

SUMMER SESSION—EVENING CLASSES—JULY 6–AUGUST 15*

7:30–8:40 p.m., Monday through Friday:

Hist. —S.115	The Origins of World War II	O'Connor

8:00–10:00 p.m., Monday:

Eng. —S.16	Creative Writing	Sultan

6:00–8:00 p.m., Monday, Wednesday, Friday:

Eng. —S.15	Introduction to Folklore	Barakat
Eng. —S.106	Contemporary American Fiction	Beard
F.A. —S.190	Oriental Art	Chee
Hist. —S.150	The Cold War	Smith
Math. —S.11b	Fundamentals of Mathematics	Perry
Soc. —S.201	Radical Religion in the 20th Century	Estus

6:00–9:00 p.m., Monday, Wednesday, Friday, July 6–July 24:

F.A. —S.10	Introduction to the Humanities	Deane

6:00–10:00 p.m., Monday, Wednesday, Friday:

B.A. —S.220a, b	Analysis of Business Problems	Shapiro

8:00–10:00 p.m., Monday, Wednesday, Friday:

Ed. —S.209	Introduction to American Education	Gordon
Eng. —S.129b	Theatre Since World War I	Schroeder
Eng. —S.233	Poe, Hawthorne, Melville	Beard

*With the exception of Introduction to the Humanities which is scheduled from July 6–July 24.

6:00–9:00 p.m., Tuesday, Thursday:

B.A. —S.20b	Business Law	Smith
Econ. —S.111b	Principles of Economics	Kelley
Econ. —S.113	Money and Banking	Graubard
Ed. —S.314	Tests and Evaluation	Quist
Ed. —S.321a	Organization and Administration of Guidance	Potter
F.A. —S.115	Multi-Media Art Workshop	Silver
Soc. —S.12	Peoples of the World	Erickson
Soc. —S.126	Race Relations	Montano
Soc. —S.240	The Second Sex	Watanabe

REGISTRATION FORM: INTERSESSION

Days: June 8–June 26 Nights: June 8–July 3

You may register fully by mail by completing this form, enclosing payment, and returning it to the Office of the Summer School by May 29. If you wish to register in person, please complete this form and bring it with payment to the Office of the Summer School, 20 Downing Street, Worcester, Massachusetts 01610, telephone 617-793-7453. Consult the General Calendar in the front of this catalog for appropriate times for in-person registration.

Name______________________________ Social Security no.__________
last first middle

Address______________________________ Sex:______Male______Female

______________________________ Marital status:________Single

________Married

If veteran seeking benefits of G.I. Bill, please check: ________PL 550

________PL 894

Check affiliation:

Clark:______Day Other institution:______________________

______Evening Address:______________________

Educational level:________Undergraduate Graduate:______Masters

______Doctorate

First registration at Clark University Summer School:______Yes______No

Department	Course No.	Course Title	Credit	Instructor

Approval for more than 4 credits must be had in writing from the Director of the Summer School.

Fees: Total amount enclosed__________ ______Late Registration fee

Scholarship

______Jonas Clark ______Tuition $45.00 per credit

______P.E.N. ______Matriculation $5.00

______L.E.E.P. ______Dormitory $20.00 deposit

______Other (specify) ______single______double

Except for exceptional circumstances (to be approved by the Director of the Summer School), all fees for Registration-by-mail must be paid by May 29; all fees for Registration-in-person and late registration must be paid by June 8.

REGISTRATION FORM: SUMMER SESSION

Days: July 3–August 15 Nights: July 6–August 15

You may register fully by mail by completing this form, enclosing payment, and returning it to the Office of the Summer School by June 24. If you wish to register in person, please complete this form and bring it with payment to the Office of the Summer School, 20 Downing Street, Worcester, Massachusetts 01610, telephone 617-793-7453. Consult the General Calendar in the front of this catalog for appropriate times for in-person registration.

Name______________________________ Social Security no.__________
last first middle

Address______________________________ Sex:______Male______Female

______________________________ Marital status:________Single

________Married

If veteran seeking benefits of G.I. Bill, please check: ________PL 550

________PL 894

Check affiliation:

Clark______Day Other institution:______________________

______Evening Address:______________________

Educational level:________Undergraduate Graduate:______Masters

______Doctorate

First registration at Clark University Summer School:______Yes______No

Did you also register for Clark Intersession courses?______Yes______No

Department	Course No.	Course Title	Credit	Instructor

Approval for more than 6 credits must be had in writing from the Director of the Summer School.

Fees: Total amount enclosed__________ ______Late Registration fee

Scholarship

______Jonas Clark ______Tuition $45.00 per credit

______P.E.N. ______Matriculation $5.00

______L.E.E.P. ______Dormitory $20.00 deposit

______Other (specify) ______single______double

Except for exceptional circumstances (to be approved by the Director of the Summer School), all fees for Registration-by-mail must be paid by June 24; all fees for Registration-in-person and late registration must be paid by July 3 (for day courses) and July 6 (for evening courses).

CLARK UNIVERSITY

Worcester, Massachusetts

EIGHTIETH ANNUAL COMMENCEMENT

ORDER OF EXERCISES

Processional	Selections of contemporary music
Welcome by the President	Dr. Frederick H. Jackson
Commencement Address	Dr. John W. Kneller, A.B. '38 President Brooklyn College
Special Address	Mr. Joshua L. Miller, '70
Conferring of Degrees	President Jackson

Closing: Excerpts from two poems read by Maryalice Cebula, '70

"Lenox Avenue Mural"
by Langston Hughes
"I Am Waiting"
by Lawrence Ferlinghetti

Recessional

Guests are requested to remain within the roped areas and not to obstruct the view of other guests attending this ceremony. Photographs may be taken only from the special area roped off for this purpose to the right of the platform.

EVENING COLLEGE CANDIDATES FOR THE DEGREE OF BACHELOR OF FINE ARTS

- Tura Diana Briddon
- Ellen M. Scott

EVENING COLLEGE CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

- Wayne Philip Bartoni
- David Sixten Berglund
- Stephen R. Burgess
- David Gordon Butler
- Amasa Gerald Condon
- *Paul Cabral Coute
- Donald Thomas Fiandaca
- Kenneth Thomas Fougere
- John Anthony Gagliastro
- Joseph P. Gianetti, Jr.
- William James Grandone
- Jeronima P. Greenwich
- Janice E. Horrigan
- Eugene Edgar Houle
- Robert Edward Jewers
- *Robert Michael Kaminski
- Richard Alden Kenneway
- David M. Keresey
- *Anthony Joseph Kuzdzal
- Richard W. Malley
- James John Manfield, Jr.
- *Ethel H. Nopanen
- R. Bruce Person
- Francis L. Quaiel
- John Patrick Quinn
- Pierre J. St.Onge
- Richard D. Steinberg
- Nicholas Albert Tasi
- Eugene F. Taylor
- Russell A. Thompson
- Ronald Emile Tremblay
- Leonard E. Vaudreuil
- John Robert Willis
- Ronald D. Zapatka

EVENING COLLEGE CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN GENERAL STUDIES

- Helen M. Archer
- Doris Mary Aubinger
- Michael John Bartholomew
- Carole Byrnes
- Marilyn Gloria Chiancola
- Frank Anton Corsini
- Kay Ingrid Escolas
- Louis Arthur Escolas
- Helen Virginia Gerden
- Richard H. Goodell, Jr.
- Lillian Elizabeth Harding
- Donald A. Hutchins
- Laura Mallee Jones
- *Zella Jones
- Philip W. Lambert
- *Lorraine M. Langevin
- Patricia Ann McNally
- Patricia Anne Ojala
- Bradford Alan Olson
- Katherine A. Persons
- Irene Anne Radziewicz
- Pauline S. Rose
- *Joseph Francis Scaccia, Jr.
- Elaine M. Shaw
- Charlotte Crandall Shumway
- Ruth Phyllis Wainshilbaum
- Harland W. Warner

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*_As of June 8, 1969_

CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS

Marc Clifford Abrahms
Gail René Abramson
Barbara Holmstrom Adams
Craig Steven Adams
Virginia Gail Adams
John Xavier Adiletta
Richard Lawrence Amuso
Richard Lloyd Anderson
*Anna Guenther Andrew
Alfred Lee Anduze
David Louis Appleby
Sarah Eve Asnes
Roger Elliott Baker
Elizabeth Anne Barclay
Jeffrey Lane Barr
Jane Ethel Barrera
James Tilton Barron
William Clark Barron
Peter Frederick Bartelli
Stephanie Anne Bartels
James Stewart Baxter
Joan Stabler Baxter
Ellenor F. Beauvais
Nansi Friedman Becker
Andrea Lee Beckwith
Mary Gail Belsito
Roy Carlton Bergkuist, Jr.
Anna Marie Bergman
*Catherine Fedosia Kulak Bergman
Michael Wayne Bialek
Steven G. Bittel
Steven Arthur Bjork
Richard Allen Blackman
Bradford Guy Blodget
Sandra Elaine Borgatti
Calvin Sawyer Bowker, Jr.
Paul Francis Bowler
Karen Helen Brayall
Daniel Bruce Brown
Dennis Leonard Brown
James Steven Brownstein
Ann Mellor Bundeff
Jeffrey Paul Calechman
Robert Anthony Cappiello
Pamela Elaine Carchio
James Franklin Carithers
Harriet Rodes Carter
Maryalice Frances Cebula
Perry Chang
George Theodore Chiungos
Wesley Stephen Chused
Raymond A. Cianci
Diane E. Ciano
Michele Maria Cimmino
Marina Sofia Cocaine
Matthew Jeffrey Coes
Harvey Allen Cohen
Mitchell Allen Cohen
Elizabeth Anita Cook
Stacy Cromidas
Robert William Cullen
James Walter Cuzytek
William Davis, Jr.
David Richard Degon
Victoria Caroline Dillon
Maureen Clare Dion
Cecelia Louise Dodd
Ralph Joseph Doerr, Jr.
*Joan Eileen McMenemy Dolan
Paul Arthur Dufries
Sylvia Anne Dutra
Judith Harris Dutson
Ellen Sue Dworkin
Michael F. Dwyer
Judith Austin Edwards
Edwin Clare Esleeck
John Newton Evans
Dawson Lycurgus Farber, III
Reese W. Fayde
Susan Ann Feinberg
Jeffrey Edward Fine
Robert P. Fink
Lois A. Fournier
Frances Jean Fraser
Alan Howard Freeman
Lynn Alice Friberg
Bruce Lawrence Friedman
*Peter Arnold Fyrberg
*Jeffrey Thompson Garfield
Kenneth Thomas George
Sanford Arnold Geyer
Edwin Joseph Gillis
Daniel Joseph Golden
Howard Steven Goldfrach
Ruth Rodman Goldrosen
David Wolfe Goodman
Leonard D. Goodman
Gary Ralph Gordon
Amelia Margaret Goulding
Joseph P. Granatir
Alan J. Granby
Paul Homer Granger
Deborah Greenhill
John William Gullen
Julia Ann Haidemenos
*William T. Hamilton

As of June 8, 1969

Kathleen Hantman
*Joel David Harris
Marie D. Hatlee
Jane Whitman Hausner
Anne Hazelton
*Steven H. Heimoff
Robert Allen Heimowitz
*Howard Hochman
*Donald Chester Hokanson
Allen David Hollander
Donald E. Horton
Robert Harold Hotchkiss
Joel Elliot Hyman
Ann Louise Hyytiainen
Dennis Lee Irish
Gail Patricia Irvine
Mareasa Rebecca Issacs
Neil Howard Jaffee
Peter Richards James
Dena Marie Janson
David Carpenter Jarmon
Wallace Lee Jew
Elliot Hastings Johnson
Theodore Stanley Johnson
Margaret Patricia Johnstone
Richard Mark Kaletsky
John Albert Kamal
Christina Kaneb
David Harold Kaplan
Howard Joel Kaplowitz
Lee D. Kassan
Karen Ann Katz
Marshall Mayer Katz
Norman David Katz
Israella Pollack Kazis
Pamela Rita Kertesz
*Jane Laura Kjoller
Jerrold Carlton Klein
Stephen Wayne Koncsol
Frances Jean Kuzmicki
John Conway Lalor, Jr.
Matthew Richard Lamkin
Laurette Gertrude Langlois
Robert Lawrence Latourelle, Jr.
Sandra Joyce Lauterbach
Marian Eva Leighton
Denise Louise Lemire
Barbara Ann Shannon LeTourneau
Hervey Louis LeTourneau
Douglas Jay Levy
Amy Helen Lewinger
Richard Marc Lilly
James Leslie Linde
Boleslaw Leon Linga, Jr.
Anna Christine Liporto
Linda Ellen Longo
Jeremy Laurence Lory
Thomas Carter Louthan
Robert Alan Lowe
Norman M. MacLeod, III
Philip Roger Magnusson
Robert Paul Maleski
Charles Robert Malmberg
*Eileen Toman Manning
Loretta Mansfield
Mady Deborah Marantz
David Jay Markowitz
Vernon Craig McCurrach
Nancy Gail McGowan
Robert Theron McMaster
Kathleen Roberts McNulty
Neil Alexander McPhail
Guy David Metcalf, Jr.
Judith Ann Meyers
Gail Louise Miller
Gayle Justesen Miller
Joshua Lee Miller
*Lee Milner
George Lawrence Minott
Catherine Mary Mita
Robert Anderson Moller
Robert Brian Monroe
Margaret Morazes
Dean Alan Moses
Kathleen Elaine Moulis
Terrence Michael Muir
Christine Mulak
Suzanne Trecet Murcia
Gary James Murray
Elaine A. Natsios
Barry Mitchell Newman
Gretl Nunnemacher
Kathleen Anne Olson
Marilynn Ann Orosz
Stephen Clark Pearlman
Faye Linda Pellett
Nancy Constance Peters
Edward Karol Piel, Jr.
Michael Bruce Pines
Ellen Trinque Placzek
Howard Joel Potash
*Daryl Prendergast
Ronald Arthur Pressman
Maris Purgailis
Carol Elizabeth Reiner
Berne H. Reuben
Robert Paul Rocco
John Stephen Rosenthal
Paul Jay Ross
Anina Elizabeth Russell

**As of June 8, 1969*

Don Harvey Salsky
Nancy Lee Savino
Linda Rebecca Savitsky
Michael R. Sawyer
Esther D Schiff
Mary Ann Scullane
Carol Ann Seitzer
Robert Mark Selby
Richard Matthews Shepperd
*Vivian Paula Sherman
Jeannette Sherwin
Alan Jay Siporin
*Kathleen Jeannette Skinner
*Linda Feldman Skinner
Susan Ruth Smelewicz
Ira Allen Spiegel
Burnham Marie Spottswood
David Porter Stayman
Steven James Stogel
Philip Raymond Strickland
Emily Joy Tashjian
Susan Theresa Thomas
Lynnette Hope Tobias
Thomas Theodore Traub
Jack Alan Tregar
Mark Christopher Valentine
Kenneth L. Vangel
Pamela Jean Vasil
Henry M. Velkoff
Donald B. Verger
Ralph James Vincent
Deborah A. Vollmer
Elizabeth Andrews Volz
*Steven L. Vorillas
Paula Janice Vrana
*Rachel Boorky Walker
Carlisle Elizabeth Walters
Susan Elizabeth Watt
Jonathan Weiner
*Sybil Myra Weiner
Edmund Taylor Weinmann
Leslie Rice Weinrebe
Kenneth M. Weisen
Martha Ann Wenisch
Margaret Ann Weston
Fred Hueston Wheeler
*Craig M. Whitcher
Hedy Elizabeth Winkler
David Stanley Wishnew
Lucy B. Wood
Philip James Wright
Elaine Hakkila Wurster
Michael Rod Zalutsky
Norman F. Zeigler, Jr.
George Zeller
William Louis Zocchi
Fredrick Zolna
Richard F. Zopf, Jr.
*Peter G. Zweigbaum

As of June 8, 1969

CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS WITH HONORS

Departmental Honors

Lewis Anthony Davis, *Philosophy*
Bruce J. Friedman, *High Honors, Physics*
William Blass Hesse, *Economics*
Arthur Anthony LaPlante, *Sociology*
Leonard S. Lutomski, II, *Highest Honors, Philosophy*

Cum Laude

Charles Stuart Andelman, *and with Honors in Government*
Eric David Arnow
Joan Marsha Axelrod
Christine M. Baranowski
Lois Eileen Brynes
Burdeen Marion Camp
Carol Janet Chambrovich
Claydon Cole Couri

Anne Cutler
David Stuart Durica
Carolyn Eldridge, *and with Honors in Chemistry*
Jerome Cleveland Ford
Judith E. Freedman
Alan Dow French
David Roger Fulton, *and with Honors in Chemistry*
Michael Ross Goldberg
David Bruce Grass, *and with Honors in Chemistry*
Margaret R. Jacobs
Peter Kontio, *and with High Honors in Economics*
Carol Donna Lee
Susan Carol Lehtinen
Judith Ann Lempicki
John Webb Leonard
Helen Bernadette Lindberg
Elizabeth Louann Lindquist
Jeffrey Neil Long
Alan Lee Marcus, *and with Honors in Geography*
Michele Stranger McCarty
Joseph Charles McGinn, *and with High Honors in Government*
Eileen Woebse McQuade
Mary Forleo Mickel, *and with Honors in Music*
Edward Fabian Mikoski, Jr.
Margaret Ellen Mitchell
Francis Michael Novick
Carl Wakefield Perkins, III, *and with Honors in Chemistry*
Mary Elizabeth Pisaruk
Donna Ellen Porter
Carol Anne Proctor
David Jerome Prosnitz
George Joseph Raynak, Jr.
Howard Bruce Segal
Ellen Miriam Stodolsky
Susan Jane Vincent
Bruce Fred Webber
Frances Ann Wiener
Joyce Carol Willcox
Mark Zimmerman

Magna Cum Laude

Howard Edward Abrams
James Clarence Blair
Jacquelyn Bonomo
Jeanne Marie Cormier
Melvin Walter Crosby, Jr.
Bonnie Lee Frank, *and with High Honors in Psychology*
Gary Edward Gladstone
Dianne Elizabeth Hanrahan, *and with High Honors in Classics*
Jo-Anne Mary Ellen Hyland
Roger George Krall
Kent Paul Ljungquist, *and with High Honors in English*
Adena Krasnow Moss
Leonard Marshall Neckers
Jeffrey Mark Nelson, *and with High Honors in History*

Julius Herman Rubin
Ann Gourley Schmucker
Arthur James Statman, Jr.
Michael Douglas Walters

Summa Cum Laude

Alan Howard Blum
Pamela Elizabeth Carey, *and with High Honors in Classics*
Michael Stuart Greenfield, *and with High Honors in Chemistry*
Barry Martin Levenson, *and with Highest Honors in Economics*
William Langdon Rutledge, *and with Highest Honors in Economics*
Lynn Marie Trzciensky

CANDIDATES FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

Gary Charles Blodgett
John Joseph Boursy
Paul David Bresnahan
Paul Kenneth Burbine, Jr.
Joseph John Concordia
Roy Francis Forgit
Albert Francis Fraier
Paul Edmond Gagner
Robert Edmond Graf
William Benton Harris
Gerald Stevens Irish
Donald Elliot Johnson
Wan Sik Kim
Marjorie Lapham
Bradley James McKenzie
Michael Edward Miles
John Robert Mutschler
David Laurence Parsons
John William Roche
John Michael Tobin
Stephen Renard Walker
Louis Philip Zollo

CANDIDATES FOR THE DEGREE OF MASTER OF ARTS IN EDUCATION

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Norman David Blumberg
Patricia Ann Chandley
Richard D. Cohn
William Frank Elliott
Helen R. Frey
Victor Francis Goguen
Gerald L. Kupperschmidt
Lenora Alice Leonard
San Nam Leong
Charna A. Lewis
Nancy Murdoch Moran
Krishnathavee Rajah
Pedro DeJesús Rivera
Catherine Dunham Schlater
Shirley Shrago Siff
Barbara Ann ZuWallack

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Neil David Schor
Jeanne Wacht

CANDIDATES FOR THE DEGREE OF MASTER OF ARTS

Biology

Stanley Walter Stadnicki, Jr.
Warren Bosley Zepp, Jr.

Chemistry

Yn-hwang Lin
Judith Markstein

Economics

Guido J. DeBoeck
Valmore L. Dumais
David Walter Fredrick
Alan Francis Perrin

English

Sylvia Flayer Bernstein
Mary Kathleen Brandt
Bradford Cushing Gooch
Margaret Ellen Ramsay

Geography

John Boyd Jacobs, Jr.
Maryann M. Johnston
Merrie Ellen Muir
Nora Gildemeister Neilson
A. Keith Van Winkle

Government and International Relations

Zvi Levin

History

François Blanty
Jeffrey Allan Carlson
Terrence Edward Coyne
David Michael Goodman
Helen Ralston Higgins
John Hamilton Long
W. Graham Moodie
Virginia Lastayo Riorden
Stephen Whitney Slocomb
Geoffrey Burr Stearns
Raymond John Zadzilko

Physics

German Patricio Carrazana Morales

Psychology

Robin C. Downes
Helaine Ruth Hopkins
Sheila Louise Hunt
Thomas Edward Mitchell
Nathanael Greene Mullener
Jill Elizabeth Rierdan
Stuart Preis Rubinow
Robert Brooks Shilkret
Rollin Edward Steiner

Sociology

Ronald MacKenzie Boucher
Patricia Ann Landurand
Cornelius H. Riordan

CANDIDATES FOR THE DEGREE OF DOCTOR OF EDUCATION

Faye Elizabeth Crandall *(Degree awarded October 11, 1969)*
Cynthia Grace MacRitchie *(Degree awarded March 11, 1970)*

CANDIDATES FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Biology

Anna-Lisa Barofsky

Chemistry

Elias Meymaris
Mei-sheng Tai
Thomas Joseph Whall

Economics

George Edward Carter
Hakchung J. Choo
Francesco Rapuano
Albert Joseph Sargent

Geography

Robert Henry Arnold
Borden Devon Dent

History

Michele M. Hilden
Barbara Gutmann Rosenkrantz

Mathematics

Warren E. Chase *(Degree awarded October 11, 1969)*

Physics

George W. Neilson
John Henry Young *(Degree awarded August 26, 1969)*

Psychology

Robert Barry Brooks *(Degree awarded August 18, 1969)*
Bert Meltzer *(Degree awarded October 11, 1969)*

CONFERRING OF HONORARY DEGREES

FREDSON BOWERS Presented by James F. Beard	*Doctor of Letters*
RENÉ JULES DUBOS Presented by Vernon Amadjian	*Doctor of Science*
JOHN MCLANE JOHANSEN Presented by Tilton M. Barron	*Doctor of Fine Arts*
JOHN WILLIAM KNELLER Presented by Robert F. Campbell	*Doctor of Letters*
BERT JAMES LOEWENBERG Presented by William A. Koelsch	*Doctor of Laws*

ADDENDUM TO

Clark University Bulletin

WORCESTER, MASSACHUSETT

Intersession and Summer Session

1970

MDCCCLXXXVII

Clark University
Summer School

Worcester, Massachusetts

Intersession, Days, June 8–June 26
Intersession, Nights, June 8–July 3
Summer Session, Days, July 3–August 15
Summer Session, Nights, July 6–August 15
Master of Business Administration Program, June 8–August 7

1970

The following courses have been added to the Intersession schedule:

English

ENGLISH COMPOSITION AND LITERATURE Eng.-S.11b
Charles S. Blinderman, Ph.D., Professor of English

The course will be devoted to the reading and analysis of literary types - the short story, the novel, the drama, and poetry.

Monday, Wednesday, Friday evenings, 6:00-9:00

History

INTELLECTUAL AND SOCIAL HISTORY OF THE U.S. TO 1860 Hist.-S.230a
John B. Hench, M.A., Instructor

History of American ideas, institutions, and people from the early colonization to the eve of the Civil War. Special attention will be given to reform movements and the recent literature in intellectual and institutional history.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

Music

INTRODUCTION TO MUSIC Mus.-S.10a
Wesley M. Fuller, M.Mu., Associate Professor of Music

A basic course for the non-music major which aims to increase the listening perception of the student. The music in the course covers a wide range including traditional western art music, non-western art and folk music, some primitive music, and music of the 20th century including electronic music.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

Philosophy

INTRODUCTION TO PHILOSOPHY Phil.-S.12a
Jefferson A. White, Ph.D., Associate Professor of Philosophy

An introduction to the nature of philosophy and its problems: methods of inquiry, types of philosophy, the nature of knowledge, value, and society. This course is designed as a comprehensive introduction to philosophy and students who have had inclusive courses at the elementary level, e.g., Problems of Philosophy, will not be admitted.

Monday through Friday, 9:00 a.m. and 2:00 p.m.

Sociology

CULTURAL ANTHROPOLOGY Soc.-S.69
Stanford N. Gerber, Ph.D., Assistant Professor of Social Anthropology and Sociology

An introductory course in cultural anthropology with emphasis upon primitive and traditional man. Topics such as conflict and violence, family, sexual behavior, and drug usage among primitive peoples will be explored.

Monday, Wednesday, Friday evenings, 6:00-9:00

The following courses have been canceled from the Intersession schedule:

German

MODERN GERMAN PROSE Ger.-S.130

Sociology

THE ANTHROPOLOGY OF ARMED CONFLICT AND VIOLENCE Soc.-S.273

The following courses have been added to the Summer Session schedule:

Biology

ECOLOGY Bio.-S.19
Instructor to be announced

The course will cover major ecological principles and concerns, ranging from discussion of biological ecosystems to problems associated with the quality of the environment. Some biological background would be desirable. Students should anticipate some all day field trips. Limited to 20 students.

Monday, Wednesday, Friday evenings, 6:00-8:00

INTRODUCTION TO IMMUNOLOGY AND IMMUNOCHEMISTRY Bio.-S.250
Harris Rosenkrantz, Ph.D., Professor of Biochemistry

A study of the cellular and humoral responses of immune reactions and the biochemical techniques used for measuring them. The nature of antigens, antibodies and antigen-antibody reactions will be discussed. The methods of complement fixation, precipitation, agglutination, immunoelectrophoesis, agar-gel double diffusion and others will be reviewed. Prerequisites: introductory biology and chemistry. No laboratory.

Monday through Friday mornings, 11:45-12:55

Geography

INTRODUCTION TO PHYSICAL GEOGRAPHY Geog.-S.11
Lawrence Lewis, Ph.D., Assistant Professor of Geography, Temple University

Physical geography with emphasis on the

principles of physiography and climatology.

Monday through Friday mornings,
9:00-10:10

REGIONAL GEOGRAPHY OF LATIN AMERICA Geog.-S.28

Lawrence Lewis, Ph.D., Assistant Professor of Geography, Temple University

A regional treatment of the geography of Latin America with special emphasis upon man-environment systems and particular focus on the Caribbean.

Monday through Friday mornings,
10:30-11:40

Social Science

PARANORMAL PHENOMENA S.S.-S.123

James Raymond Wolfe, B.S., Lecturer

This course will give the student a broad view of those paranormal phenomena for which there appears to be at least some measure of scientific validation. Subjects will include: extrasensory perception, psychokinesis, apparitions, mediumistic phenomena, dowsing and radiesthesia, astrology, cosmobiology.

Monday, Wednesday, Friday mornings,
9:00-11:00

SOCIOLOGY OF THE OCCULT S.S.-S.124

James Raymond Wolfe, B.S., Lecturer

This course deals with the more speculative aspects of the occult from ancient days to the present. It intends to show the various kinds of magical thinking that man has used in trying to gain control of his universe. It includes the following subjects: witchcraft, hermetic philosophy, magic alchemy, mantic devices, yoga philosophy, reincarnation.

Monday, Wednesday, Friday evenings, 6:00-8:

The following courses have been canceled from the Summer Session schedule:

Fine Arts

ORIENTAL ART F.A.-S.190

Sociology

RACE RELATIONS Soc.-S.126

REVOLUTION IN ASIA Soc.-S.150

Instructor and Course Number changes:

Intersession

PERSONNEL MANAGEMENT B.A.-S.112
Richard S. Juralewicz, Ph.D., Associate Professor of Management, Worcester Polytechnic Institute

CIVIL LIBERTIES Govt.-S.51
Elliot Tenofsky, M.A., Lecturer, Brandeis University
Note: This course has been changed from the Sociology Department to the Government Department, course number Govt.-S.51

Summer Session

TESTS AND EVALUATION Ed.-S.214
Note: This course number has been changed from Ed.-S.314 to Ed.-S.214.

THE ORIGINS OF WORLD WAR II Hist.-S.115
John Wirkkala, M.A., Lecturer

For further information, catalog, and registration forms, please contact:

The Summer School
Clark University
20 Downing Street
Worcester, Massachusetts 01610
793-7453

REGISTRATIONS FOR BOTH INTERSESSION AND SUMMER SESSION ARE NOW BEING ACCEPTED

AUG 1970
WESBY